Attracting Capital for Railway Development in China
Acknowledgements:

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Attracting Capital for Railway Development

Introduction

China Railways Corporation (CRC) is considering new ways to attract capital to support the strategic development of the railway sector. Currently, government is the predominant equity financier, with debt being supplied by domestic bank credits and limited amounts borrowed from International Financial Institutions such as the World Bank and Asian Development Bank. Considering its high level of accumulated debt and liabilities (RMB 3.7 trillion on an asset base of 5.7 trillion), CRC wishes to explore equity investment mechanisms, to increase cash flow from its core and non-core activities, and to use different financing channels as a way to leverage the value of its assets and introduce market-based business models to the sector.

CRC is seeking to attract investment from both the private sector and from public sources such as local governments and state owned enterprises. It refers to these sources of capital as “Social Capital.”

This report examines how companies in China and railways in seven other countries—China, France, India, Japan, Poland, Russia, United Kingdom, United States—have attracted capital and made capital budgeting decisions to support their strategic development.

Portfolio Management

CRC’s structure includes eighteen local railway bureaus (within which are some 1500 non-transport entities), six subsidiary companies, and interests in numerous High Speed Railway (HSR) joint ventures. CRC is considering how it should organize and manage these entities to maximize their value and generation of cash flow to CRC. The cases in the following chapters represent a broad range of situations.

Nonetheless some common principles for capital budgeting and portfolio management are evident.

- **Align the portfolio to the strategy.** In many of the cases, the company acquired or developed subsidiaries that supported its strategy and divested companies that did not. For example, in the Union Pacific case, the strategy was to extend the geographic reach of the Union Pacific (UP) railway to remain competitive with other USA railways that had expanded geographically. In pursuit of this strategy, UP divested non-railway properties (including natural resources, solid waste and trucking businesses) and used the funds generated to acquire railways that extended UP’s line and provided access to key markets such as Chicago.

In the COFCO case, COFCO realized that to compete effectively with integrated international competitors, it needed to control its full value chain. It acquired...
upstream and downstream companies to pursue this strategy. In the Jinxi Axle case, Jinxi Axle focused its portfolio management activities on its strategy of strengthening its technological base and production capacity.

- **Use capital transactions to finance execution of the strategy.** In the COFCO, Jinxi Axle and Russia cases, Initial Public Offering (IPO) of shares in profitable subsidiaries provided funding for investments that supported the company’s strategy.

- **Rationalize the portfolio to improve efficiency.** The COFCO case demonstrates that rationalizing the structure and relationships between the companies in the portfolio—grouping companies in similar markets and separating them from companies in unrelated markets—can be necessary to improve efficiency. As the UP case shows, this rationalization can be disruptive in the short term, but yields positive results in the medium to long term.

- **Require each entity to be financially self-supporting.** In the COFCO case, the parent company created an internal capital market to channel its investment capital to the most worthy projects. In the Burlington Northern Santa Fe-Berkshire Hathaway (BNSF) case, the parent company, Berkshire Hathaway, carries out this function using a capital allocation approach focused on creating long term value.

- **Combine management autonomy with accountability for results.** In the BNSF case, Berkshire Hathaway made the managers of subsidiaries such as BNSF responsible for all operational decisions. Berkshire Hathaway aligns the managers’ interests with those of its shareholders, by providing Berkshire Hathaway stock as incentive compensation for exceeding targets on return on capital invested. In the COFCO case, COFCO creates strong incentives for performance through performance contracts with its manager, which combine personal responsibility with rewards for team performance.

World Bank has provided CRC with a separate note on applying these concepts to CRC’s portfolio.

### Public Private Partnerships

The case studies of Shantou land development and French high speed rail PPPs illustrate a number of broadly applicable features of public private partnerships (PPPs).

- **PPPs can attract significant social capital.** In the France High Speed Rail Public Private Partnership case, the introduction of PPP enabled HSR projects to be undertaken sooner than possible with a traditional financing approach, because financing was mobilized from the private sector, local and national government and the railway. In the Shantou case, the local government transferred responsibility for financing the redevelopment of an urban area (estimated at US$ 8.3 billion over 20 years) from government to a private company through a PPP.

- **PPPs often involve many public and private sector partners.** In France, for example, the HSR PPPs involved the
railway, local governments, the national government, and multiple financing institutions.

- **PPPs are an expensive source of financing.** They should be employed only when engaging with outside parties brings value in terms of knowledge, market position, cost efficiency or other resources.

- **The PPP is more effective when partners bring different skills and resources, as well as financing.** For example, in the Shantou case, synergy was created by combining CITIC’s land development experience with the municipality’s control over the land. In the French PPP case, the private sector brought technical skill in constructing railway infrastructure.

- **Risk should be aligned with the ability to manage it.** In the French HSR PPP contract structure, for example, construction risk was allocated to the private sector partner, while land acquisition risk was a public sector responsibility.

- **The project must be profitable to the private sector partner.** For example, in France, two PPP models were developed. When revenue from traffic was expected to be high enough to cover operating costs and some investment costs, the railway and government contributed to capital costs so the project was profitable for the private sector partner. When revenue from traffic was not sufficient, the private sector partner received an availability payment to make the project profitable to it.

These principles may apply to many forms of cooperation between the public and private sectors. As discussed below, a promising opportunity for CRC to apply PPP concepts is land value capture.

### Land Value Capture

Rail lines, in particular high speed rail lines, create value by improving accessibility and facilitating agglomeration economies. Such value can be greatly enhanced through effective land use around stations, with the development of diverse types of real estate, coinciding closely with market demand, within close reach of the stations. Integrated land use planning can increase the land value and generate substantial additional rail traffic.

The case studies of MTR in Hong Kong, Tokyu Corporation and Futakotamagawa in Japan, and King’s Cross in London illustrate some of the key features of the land value capture approach.

- **The first step in effective land value capture is value creation.** The value of an area around a station is a function of its market value, its place value and its node value (its position in the transport network). While railways influence the node value, the King’s Cross and Futakotamagawa case demonstrate that the quality of urban development around a station and the responsiveness of such development to market needs are fundamental to create maximum value and require careful preparation.

- **Only partnerships can achieve optimal results.** Creating maximum value requires a broad range of expertise, assets, specific development rights and active consultation with future users and
citizens. Aligning interests in a way each party can understand how it will win is an essential step for successful implementation. This applies in particular in China, where land is controlled at city level. Accordingly, to be an attractive partner, CRC needs to bring additional value in the form of high quality integrated solutions.

- **Land value capture takes a long time.** In all case studies a 15 to 20 year span is common between the planning starting point and the end results. Frequently rail companies seek a long term return (Tokyu Corporation, LCR in London) through lease revenues rather than a quick profit through rapid sale of land just at opening of a station.

- **Each line and each station is unique and land value capture works best when land value is already high.** Aside from early examples of land value capture (US/Canada), for which large land areas were granted for the construction of rail lines in the 19th century, most land value capture has taken place in areas where land value was high to start with and made higher by a sudden gain in accessibility provided by a new rail line. Scarcity of land (in the Tokyo and Hong Kong cases) or of certain type of real estate (in the King’s Cross case) was essential to ensure that value could be created and concentrated around stations.

- **Good governance mechanisms need to be put in place to manage risks.** When leveraging land value, rail entities face risks that their land and right-of-way assets may be undervalued, leading to lower returns than achievable. They also face the risk of undertaking real estate development with high commercial risks. Managing such risks require independent reviews of land value (Hong Kong case), partnership with other developers to apply good practice in real estate risk mitigations (Hong Kong, London, Tokyo cases), and close management monitoring of financial obligations and contingent liabilities (Hong Kong case).

The approach has relevance for China Railway Corporation (CRC) and to cities in China, considering recent State Council Directives (2012[64], 2014[37]) encouraging the integrated development of areas around stations. Its application in China would warrant a number of adjustments to reflect the legal and planning framework for land management and the institutional responsibilities of cities, CRC and urban rail companies.

This could be applied by selecting the most promising opportunities in the new high speed rail network based on traffic volumes and market needs, and interested local government partners. It could be then followed by a series of pilot projects for different types of stations. Similar principles could be pursued for logistics centers nearby freight stations.

**Right-of-Way Value Capture**

The case studies of Railtel and SPRINT demonstrate that the railway right-of-way has value beyond the provision of railway service. As demand for telecommunications
services has grown, the value of the railway right-of-way for telecommunications channels has grown. In both cases the railway realized that providing retail telecommunications service was not its core competency. Consequently, it separated the telecommunications activity into a commercial company. In the Railtel case, revenue from selling telecommunications capacity to telecom retailers funded the development of the communications network used by the railway. In the SPRINT case, the telecommunications network was sold to private investors.

Equity IPO

The case studies of Jinxi Axle, PKP Cargo, and Russian Railway illustrate several broadly applicable features of selling shares in railway businesses through initial public offerings (IPOs) of stock. In each case, the entity offered on the stock market was:

- **Profitable.** Investors are only interested in entities that will earn positive financial returns. PKP Cargo, for example went through an extended period of restructuring to reduce its costs and become profitable before it was offered on the market.

- **Understandable.** Investors need to understand the nature of the business and the risks associated with it. If the entity is too complex, the private sector will be reluctant to invest. Russian Railway, for example, created rolling stock companies operating in a transparent legal/regulatory structure, which it offered to private investors.

- **Transparency & independently governed.** Investors look for the company to have sound corporate governance, with transparency and independent supervisory board members to ensure that the company will be managed for the benefit of all its shareholders and not just its former owner. For example, in the Jinxi Axle case, five of 11 board members are independent and the majority owner has provided assurances to the minority investors that it will not interfere in the day-to-day management of the company.

The IPO benefits the parent company by providing cash, which the parent can use to support its strategic development. The company’s management is strengthened by broadening its ownership and bringing a private sector perspective to its management.

Asset-based Financing

The cases of Suning REIT, TTX and Russia demonstrate the potential for leveraging financing from the railway’s large fixed asset base. In each case, the company received financing or avoided having to finance operational assets (land, wagons) by transferring the assets to a company with separate ownership. In exchange, the company or the customer was obliged to pay rent for use of the asset in the future. Some net benefits may be created from such transactions. For example, TTX created savings through improved wagon utilization. However, the transactions are primarily financing, with the assets as security.
Conclusions

Railways worldwide have been able to employ a wide range of mechanisms to attract investment capital to the railway sector. A common requirement for the investor is that the investment is profitable and the profit is commensurate with the risks undertaken. CRC, likewise, may consider the cost, benefits and risks of each mechanism before choosing which ones to employ.
Burlington Northern Santa Fe Railroad—Berkshire Hathaway

Relevance to the Chinese Railway Sector

The example of Burlington Northern Santa Fe Railroad (BNSF) illustrates that a railway can succeed in a conglomerate of unrelated businesses, provided that:

- The railway’s business is profitable;
- The railway management has decision making autonomy and responsibility for results; and
- Its owner exercises strict, objective, value based capital budgeting.

The relevance lessons for China could be:

- To get high return on a diversified portfolio, every investment has to stand on its own financially and increase value;
- Berkshire Hathaway (BH) portfolio principles—management autonomy, value based capital allocation, and long term perspective—allow railway business to maximize cash flow and long term value; and
- Optimizing the capital structure of a profitable investment through revaluation of assets and balancing with debt, can release cash for capital investment and dividends.

Impact Summary

BNSF was able to leverage the inherent value of its assets and ongoing business, by optimizing its capital structure and improving its profitability. This allowed the company to steadily increase capital expenditure while returning US$ 12.7 billion in dividends to its owners.

Motivation

New ownership by BH enabled BNSF management to focus on long term value creation in the railway business, improving it’s the long term profitability. At the same time, BH’s value based capital budgeting principles required BNSF to pay increasing dividends to the parent company.

China Railway Corporation (CRC) could consider applying such an approach to the profitable businesses in its portfolio.

Experience

Burlington Northern Santa Fe Railroad (BNSF) is a vertically integrated freight railroad operating in 28 states in central and western United States and two Canadian Provinces. BNSF main lines of business are consumer products (intermodal and autos), industrial products (e.g., oil, plastics), coal and...
agricultural products. It was created through merger of railway companies that were built by the private sector (supported by the US government through grants of land). BNSF was owned by private sector investors, with publically traded shares until 2010.

In February 2010, Berkshire Hathaway (BH), an investment company controlled by Warren Buffett, bought the outstanding shares of BNSF in a transaction valued US$ 40 billion (including debt assumption).

Berkshire Hathaway’s overall investment strategy has been to invest relatively low cost financing, generated by float from its insurance business and deferred taxes of its other businesses, into long term profitable businesses. The investments are selected by a team of BH staff, led by Mr. Buffett, who exercise “value investing.” They seek out business that are (a) understandable, (b) have a consistent operating history and strong management, (c) a brand or other attribute that gives them a strong market position, and (d) solid earnings and strong growth prospects.

BNSF met these criteria: (a) its business was providing rail transport, which is understandable; (b) the railway had steady operating results, indicative of strong management; (c) BNSF has rail network that would be very costly to reproduce and 40 percent market share in rail transport in the Western USA; (d) BNSF was a profitable company that provided its shareholders with a return on equity of 13 percent and a return on assets of 4.4 percent in 2009 with good growth prospects linked to growth in the US economy. At the time of the acquisition, Warren Buffett called the acquisition an “all-in wager on the economic future of the United States.”

BH applied its portfolio management principles—management autonomy, value based capital allocation and long term perspective in decision making—to the BNSF investment.

Table 1: Key Indicators for BNSF

<table>
<thead>
<tr>
<th></th>
<th>2009 (pre-acquisition)</th>
<th>2013 (post-acquisition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>37,000 owned right to operate on additional 14,500 km</td>
<td>37,000 owned right to operate on additional 15,300 km</td>
</tr>
<tr>
<td>Freight traffic (million tons)</td>
<td>486</td>
<td>549</td>
</tr>
<tr>
<td>Passenger traffic</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Employees</td>
<td>35,000</td>
<td>43,000</td>
</tr>
</tbody>
</table>

*Source: Burlington Northern Santa Fe 10-K and R-1 reports.*

![Figure 2. BNSF Traffic](Source: BNSF R-1 Reports.)
In the four years following the acquisition, BNSF traffic grew modestly, slightly exceeding its 2008, pre-recession level. Nonetheless, revenue and profitability grew rapidly, causing cash flow from operations to increase by nearly 70 percent.

Over the same period, operating expenses per ton-km were held to a seven percent increase. Staff costs increased commensurately with revenue, but fuel, equipment rental and materials costs actually decreased. (Fuel efficiency increased five percent over the period because of replacing old locomotives with more fuel efficient ones and improvements in operating practices.)

The growth in margin created by greater increase in revenue than in costs, generated substantial growth in cash flow from operations.

Optimization of the capital structure through writing up the value of the assets and issuing more long term debt, allowed capital investment to be maintained, while dividends were increased.

Industry Structure & Institutional/Regulatory Framework

The railway industry in the United States includes:

- Four large, vertically integrated, private investor owned freight railways;
- Over 500 vertically integrated short line railways, with varying ownership (municipalities, industries, private investors, large railways); and
- One government owned intercity passenger company, Amtrak, which operates on its own infrastructure on the Northeast Corridor and on the infrastructure of the freight railways in other locations.
- More than 40 commuter/heavy rail services operated for transit authorities.

The legal and regulatory framework is defined by three laws:

- The Interstate Commerce Act (1887) created the basic regulatory framework for railways legal framework for railways, assigning them a common carrier and passenger service obligations, limiting reductions in track/service, regulated tariffs, and forbade discrimination in service/tariffs.
- The Railroad Revitalization and Regulatory Reform Act (1974) modified
the Interstate Commerce Act to introduce some flexibility in rates, allow more track/service reductions.

- The Staggers Act (1980) modified the Interstate Commerce Act and Railroad Revitalization and Reform Act to provide for substantial deregulation of freight tariffs, allow railways to contract with customers, eased restrictions of railways mergers and allowed the railways to close and divest railway lines with insufficient traffic.

The Preliminary National Rail Plan, prepared by the Federal Railroad Administration, sets the national government’s priorities for rail: developing high speed passenger rail service, supporting high performance freight service, intermodal connectivity and safety.

**Mechanism**

**Acquisition.** Prior to the transaction, BH had acquired 22.6 percent of BNSF shares on the stock market. On November 2, 2009 BNSF and BH entered into a merger agreement that called for BH to acquire the outstanding shares of BNSF common stock. Owners of BNSF were offered $100 per share or the equivalent in BH stock. The transaction required approval of holders of two-thirds of the outstanding shared (other than those already held by BH). The transaction was approved by shareholders and closed on February 12, 2010. BH paid US$ 15.9 billion in cash and $10.6 billion in BH stock for the outstanding shares of BNSF. The transaction was valued at US$ 40 billion, including assumption of outstanding debt.

**BH Management Principles.** BH manages its investment portfolio using three core principles: management autonomy, value based capital allocation and long term perspective.

**Management autonomy:** At BH, company managers are in charge of all operating decisions. (Although BH has over 330,000 employees, only 25 of them are at headquarters.) BH seeks out managers that “love their business, think like owners, and exude integrity and ability” and gives them autonomy to manage the business. This autonomy enabled the BNSF managers to double BNSF’s profits in four year.

> “Managers are happiest when they are left alone to run their businesses and that is customarily just how we leave them”  
> Warren Buffett

**Value based capital allocation:** All excess capital generated by the companies are sent to headquarters and invested by BH. This keeps the managers focused on their business and not tempted to diversify into unrelated businesses. All fund invested back into the business are subject to the simple financial test: Does the company create at least $1 in value (discounted future return) for every $1 retained in the business? BNSF has retained a robust level of cash in the railway for capital expenditures.

BH rarely sells a business, so long as it is generating some positive cash flow, has good

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1 Berkshire Hathaway (2014). *Owner’s Manual S.*
management and labor relations. However, capital expenditures are squeezed in such businesses. Mr. Buffett says, “we react with great caution to suggestions that our poor businesses can be restored to satisfactory profitability by major capital expenditures.”

Sales that do occur may be executed through stock sales publicly traded companies or through negotiated agreements with investors.

**All cash, except that approved for investment is sent to Berkshire Hathaway for investment in other businesses**

**Long term perspective**: BH exercises a “buy and hold” strategy. It does not worry about the stock price fluctuations of the companies in which it invests. It does not sell good companies, even if their market value is high.

**Governance and Incentives.**

BNSF is governed by a 14 person Board of Directors, who have a fiduciary responsibility to guide and oversee the company. Two directors are from BH, one from BNSF management and the remaining eleven are independent. The Board has four standing committees:

- Audit
- Compensation & development
- Corporate governance
- Executive

The BNSF manager serves on the executive committee. All other committees are composed of independent directors.

BH seeks to align interests by giving the company management an ownership interest in the success of the business. At the time of the acquisition, BNSF managers’ compensation consisted of base salary,
incentive compensation linked to financial performance, asset utilization and safety. Much of the incentive compensation was paid in the form of stock and stock options.

As part of the acquisition, BNSF management’s stock and stock options were converted to BH stock. After the acquisition, “to align management’s interest with those of its shareholders,” BH stock that vested over time was provided as incentive compensation for exceeding return on capital invested targets. As Warren Buffet says, “Most of our managers are independently wealthy, and it’s therefore up to us to create a climate that encourages them to work with Berkshire.”

**Optimizing BNSF Capital Structure.** The acquisition created an opportunity to write up the assets and equity of BNSF to reflect the price that BH paid for the company. BNSF shareholder’s equity was increased by more than US$ 22.7 billion. Property, plant and equipment was increased by US$ 13 billion (the asset write-up is determined by considering the current market value and the earnings potential of each asset group) and goodwill by US$ 12 billion.

BNSF profits more than doubled and cash flow from operations increased substantially, enabling BNSF to raise more long term debt. The recapitalization and asset revaluation in 2010 caused BNSF’s debt/equity ratio to drop from 0.81 to 0.34. Between 2010 and 2013, BNSF increased long term debt by US$ 6.7 billion, which gradually brought its debt/equity ratio to 0.49.

The increase in cash from operations, together with increasing debt enabled BNSF to maintain substantial capital expenditure between US$ 2.5 and 4 billion, while substantially increasing dividends paid to the shareholder.

**Figure 5. BNSF Capital Investment & Dividends**

![Figure 5. BNSF Capital Investment & Dividends](Source: BNSF 10-K Reports.)

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Financial Impact

The main financial impact of the acquisition is that BNSF increased its profitability and dividends paid to its shareholder. The changes in BNSF’s financial situation between 2009 and 2013 are detailed in Table 2.

Other Impacts

The change in ownership and financial restructuring discussed above has had modest impact on BNSF’s operations. Traffic has grown about 14 percent since 2009. Much of this was recovery from recession traffic levels. Traffic mix has changed very little, but revenue per ton-km has increased by 38 percent.

The network owned by BNSF has not changed, but it has obtained trackage rights on 800 km more of lines.

Stakeholder contributions and Impacts

Customers: Major BNSF customers include container shipping companies, automobile manufacturers, coal and other mining companies, oil companies and Midwest farmers.

Employees: BNSF has over 44,000 employees who are represented by a variety of unions. The number of employees increases from 35,000 to 43,000 between 2009 and 2013.

Local communities: Communities benefit from BNSF employment and provision of transport to local communities and experience negative impacts such as noise, blockage of level crossings, and risk of accidents. They have seen little change.

Investors: Before acquisition by BH, BNSF was a publically traded company owned by many thousands of investors. Many of these investors now hold shares of BH.
### Table 2: Changes in BNSF Annual Financial Results between 2009 and 2013 (US$ Millions)

<table>
<thead>
<tr>
<th>Income Statement</th>
<th>Change</th>
<th>Balance Sheet</th>
<th>Change</th>
<th>Cash Flow</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td><strong>Assets</strong></td>
<td></td>
<td><strong>Operations</strong></td>
<td>+ 2,349</td>
</tr>
<tr>
<td>Rail services</td>
<td>+ 7,679</td>
<td>Current assets</td>
<td>+ 1,547</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government support</td>
<td>0</td>
<td>PPE (net)</td>
<td>+ 20,069</td>
<td><strong>Investing</strong></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>+ 319</td>
<td>Other long term assets</td>
<td>+ 14,739</td>
<td>Capital investment</td>
<td>(1,194)</td>
</tr>
<tr>
<td>Total</td>
<td>+ 7,998</td>
<td>Total</td>
<td>+ 36,359</td>
<td>Sale of assets</td>
<td>(368)</td>
</tr>
<tr>
<td><strong>Operating Expenses</strong></td>
<td></td>
<td><strong>Liabilities</strong></td>
<td></td>
<td><strong>Financing</strong></td>
<td></td>
</tr>
<tr>
<td>Wages &amp; benefits</td>
<td>+ 1,170</td>
<td>Current liabilities</td>
<td>+ 512</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials &amp; energy</td>
<td>+ 2,397</td>
<td>Deferred taxes</td>
<td>+ 7,902</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td>+ 436</td>
<td>Long term debt</td>
<td>+ 6,670</td>
<td>Issue long term debt</td>
<td>+ 2,175</td>
</tr>
<tr>
<td>Other</td>
<td>+ 590</td>
<td>Other</td>
<td>(543)</td>
<td>Retire long term debt</td>
<td>(11)</td>
</tr>
<tr>
<td>Total</td>
<td>+ 4,593</td>
<td>Total</td>
<td>+ 14,541</td>
<td>Dividends</td>
<td>(3,454)</td>
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<tr>
<td><strong>Operating Income</strong></td>
<td></td>
<td><strong>Equity</strong></td>
<td></td>
<td><strong>Net Change in Cash</strong></td>
<td>(205)</td>
</tr>
<tr>
<td>Interest &amp; other financial</td>
<td>+ 118</td>
<td>Share capital</td>
<td>+ 12,650</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income before Income tax</td>
<td>+ 3,287</td>
<td>Retained earnings</td>
<td>+ 9,164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income tax</td>
<td>+ 1,215</td>
<td>Total</td>
<td>+ 21,814</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+ 2,072</td>
</tr>
</tbody>
</table>

*Source: Burlington Northern Santa Fe LLC 10-K Reports.*
References


China National Cereals, Oils and Foodstuffs Corporation (COFCO)

Relevance to China Railway Sector/CRC

The example of the COFCO group illustrates that enterprises can optimize their asset value and succeed in implementing their strategy through effective portfolio management. This example illustrates how COFCO group used spin-off and public listing to attract external capital, optimized its resource allocation through merger and acquisition (M&A), and realized effective portfolio management with interactions of internal and external capital markets.

Relevant aspects of this experience for CRC are:

- Spin-off and IPO of different businesses can generate financial capital;
- Internal M&A (restructuring) of businesses in the group can help achieve economies of scale and scope of the group;
- External M&A can extend the groups’ value chain;
- Creating an internal capital market improves allocation of resources;
- Interaction of internal and external capital markets maximizes the value of resources invested.

**Impact Summary**

**Increase Competitiveness.** Through the spinoff and internal M&A of different businesses, COFCO has achieved the public listing of independent businesses and improved the competitiveness of its subsidiaries. The M&A activities extended the COFCO group’s industrial chain and created synergies. Through these actions, COFCO increased its control over the whole industrial chain and improved its competitiveness.

**Extend the Industrial Value Chain.** The COFCO Group reorganized its assets to avoid waste of resources. The Group increased the control of its value chain by integrating its internal business units and creating competitive sectors or subsidiaries. The Group’s support in providing financial and other resources also contribute to the extension of these business units. The industrial chain strategy was realized through the coordination and integration at the group level.

**Promote Active Internal Capital Market.** COFCO managed its portfolio to extend its value chain through M&As and formed a powerful internal capital market. Meanwhile, the group also has spinoffs in different business units and has listed them on the Chinese mainland and Hong Kong stock markets. This approach connected the internal and external capital markets, generated continuous funds for the internal...
capital market, and developed a stable and effective internal capital market.

**Motivation**

**International Competition.** The international grain giants—Archer Daniels Midland, Bunge, Cargill, and Louis Dreyfus—control 80 percent of the world’s grain transactions. In recent years, the big four grain enterprises started to develop the entire industrial chain in China and exercise control over prices. The COFCO group needed to develop its whole value chain to respond. Otherwise, its development could be constrained.

**Domestic Competition.** In the Chinese domestic market, the COFCO group also confronts different competitors. Brand development and logistics capability constrain COFCO’s development. The only way to increase its competitiveness and the group’s was to manage its portfolio effectively.

**Integrated Value Chain Strategy.** To implement an integrated value chain strategy, COFCO needed to synergize its different business units and extend its value chain through both internal restructuring and M&A. This required financing resources from both the internal and external capital markets for the different business units.

**Experience**

**Development Experience**

COFCO Group is a Chinese state-owned food processing holding company. It is China’s largest food processing, manufacturer and trading company. It was established in February 1949 in Tianjin as the North China Foreign Trade Company. With its development and mergers with other companies, it was first awarded the title of Global Top 500 enterprises by Fortune in 1994. In 2007, the enterprise was renamed as “COFCO”. Now, the COFCO Group is the largest supplier of diversified products and services in the agricultural products and food industry in China. It is devoted to using renewable natural resources to provide healthy and nutritious food, a high-quality lifestyle and services, as well as contributing to improving people’s living standards, social prosperity and stability.

The COFCO Group has four companies listed in Hong Kong—China China Foods (00506.HK), China Agri-Industries Holdings (00606.HK), Mengniu Dairy (02319.HK), and COFCO Packaging Holdings (00906.HK)—and three companies listed in mainland China—COFCO COFCO Tunhe (600737), COFCO Real Estate (000031) and BBCA (000930). The COFCO group boasts a wide range of branded products and services. (Table 1.)

In 2005, COFCO changed its strategy, diversifying the group along the entire industrial value chain and creating specialized business units. Since then, COFCO group carried out a series of M&A activities. For example, in 2005, it acquired China Resource Biochemical, China Resources Alcohol, China Resources Wine-making, and Jilin Fuel Ethanol. Key steps in this process are shown in Table 2.
In 2006, COFCO group spun-off and restructured its subsidiary company, COFCO International Holdings Limited (00506.HK) which was listed on the Hong Kong Stock Exchange. Before the spinoff, the market position of COFCO International Holdings Limited was not clear. The scale of its business was very large and was involved in multiple industries. In the end, COFCO International Holdings Limited acquired the food, beverage and agriculture-related business from COFCO (Hong Kong) Limited for US$68 million, and was renamed as China Foods Limited.

China Agri-Industries Holdings. The COFCO group spun off the businesses of oil seed processing, biochemical and biological fuel, beer raw materials, wheat processing, and rice processing and trade in 2006. (Figure 1.) These businesses were reconstructed into a company named China Agri-Industries Holdings Limited and raised HK $3.2 billion on the Hong Kong Stock Exchange in March 2007.

### Table 1: Listed Companies of COFCO

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Stock Code</th>
<th>COFCO Share</th>
<th>Business Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Agri-Industries Holdings</td>
<td>00606.HK</td>
<td>59.40%</td>
<td>Oilseeds processing, biochemical and biofuel, rice processing and trading, wheat processing as well as brewing materials</td>
</tr>
<tr>
<td>China Foods</td>
<td>00506.HK</td>
<td>65.08%</td>
<td>Beverages, wine, confectionery and packaging edible oil business</td>
</tr>
<tr>
<td>COFCO TUNHE CO., LTD</td>
<td>600737.SH</td>
<td>59.60%</td>
<td>Agricultural cultivation; processing and trade of tomatoes, sugar, nuts and fruit, canned food and beverage</td>
</tr>
<tr>
<td>CPMC Holdings Limited</td>
<td>00906.HK</td>
<td>60.24%</td>
<td>Manufacturing of metal beverage cans (aluminum two-piece beverage cans and tinplate three-piece beverage cans), general metal packaging products (food cans, aerosol cans, metal caps, coated iron, steel barrel, etc.) and plastic packaging products</td>
</tr>
<tr>
<td>Biochemical (AnHui) Co., Ltd.</td>
<td>000930.SZ</td>
<td>20.74%</td>
<td>Bioengineering R&amp;D; production and sale of organic acid and organic acid salt, starch sugar, MSG and amino acid; production, sale and storage of edible alcohol and fuel alcohol</td>
</tr>
<tr>
<td>COFCO PROPERTY (GROUP) CO., LTD</td>
<td>000031.SZ</td>
<td>50.65%</td>
<td>Real estate</td>
</tr>
<tr>
<td>Joy City Property Limited</td>
<td>00207.HK</td>
<td>75.00%</td>
<td>Real estate</td>
</tr>
<tr>
<td>MENG NIU</td>
<td>02319.HK</td>
<td>31.52%</td>
<td>Production and sale of dairy products</td>
</tr>
</tbody>
</table>

Notes: COFCO Group is the largest stakeholder. According to increases holds of stakes, COFCO have 31.52% shares of MENG NIU.

**COFCO Packaging Ltd.** In 2000, COFCO Group established a packing department to manage its packing business, based at the Hangzhou COFCO metal container Co. Ltd. In 2005, the COFCO packing department acquired Xin Jiang Tuhe Co. Ltd’s subsidiary Zhang Jia Gang Tunhe can factory and integrated it into the Zhang Jiang Gang COFCO Packing Co. Ltd. Sales revenue of COFCO Packaging increased from 316 million yuan in 2000 to 1.36 billion yuan in 2005. It has become a leading enterprise in the Chinese metal packaging industry. In 2006, COFCO packaging department transformed and established the Hangzhou COFCO packing Co. Ltd. In the same year, it acquired the Zhen Jiang Huadingsidi cover factory. On November 16, 2009, COFCO packaging Co. Ltd. (0906 HK) was listed on the Hong Kong Stock Exchange. This highlights the rapid growth of COFCO Packaging.

Since being listed on the Stock Exchange, China Foods Limited, China Agri-Industries Holdings Limited, and COFCO Packing are rapidly developing in their own sector without being constrained by the COFCO group’s funds and management concept.

**China Mengniu Dairy.** China Mengniu Dairy Company Limited and its subsidiaries produce and distribute quality dairy products in China. It is one of the leading dairy product manufacturers in China, with MENGNIU as its core brand.

In 2009, the COFCO group, together with the Hopu Investment Management Fund, established a special purpose venture and invested HK $6.1 billion to acquire a 20% stake in Mengniu Dairy (02319, HK). After the transaction, the special purpose venture became the biggest shareholder of the Mengniu Dairy. Following an increase of stock, the COFCO group and its subsidiary directly owned a 31.52% stake in the China.
Before acquiring Mengniu Dairy, the COFCO group had not been involved in the dairy industry. The investment enriched its product categories, extended its business lines, and achieved diversification in the group’s development. When the COFCO group acquired Mengniu, the dairy company was embroiled in the “melamine scandal” and a “valuation adjustment mechanism” case. COFCO’s involvement increased the financial capability of Mengniu and stopped it from being acquired by foreign capital. The acquisition not only integrated Mengniu’s advantage of brand and marketing with the COFCO group’s capital, but also enabled the COFCO group to become involved in the dairy industry and created more opportunities for the COFCO group’s growth.

**Table 2: Key COFCO M&A and IPOs**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Acquired China Resource biochemical, China resources alcohol, China resource win-making, and Jilin fuel ethanol</td>
</tr>
<tr>
<td>2006</td>
<td>Merger Xinjiang Tayuan red flower Co., LTD</td>
</tr>
<tr>
<td>2006</td>
<td>Acquired 20% shares of Fengyuan biochemical</td>
</tr>
<tr>
<td>2006</td>
<td>Through spinoff, the COFCO change the name to China foods as a company listing in Hong Kong</td>
</tr>
<tr>
<td>2006</td>
<td>Through spinoff, the COFCO change the name to China foods as a company listing in Hong Kong</td>
</tr>
<tr>
<td>2007</td>
<td>IPO of China Agri-Industries Holdings Limited</td>
</tr>
<tr>
<td>2009</td>
<td>IPO of CPMC Holdings Limited</td>
</tr>
<tr>
<td>2009</td>
<td>Reconstruction of Cereal Way</td>
</tr>
<tr>
<td>2009</td>
<td>Acquired 20.03% shares of Mengniu Diary</td>
</tr>
<tr>
<td>2010</td>
<td>Acquired Chile Colchagua wine company and its vineyard</td>
</tr>
<tr>
<td>2013</td>
<td>Acquired 51% shares of Nidera</td>
</tr>
</tbody>
</table>

_Source: COFCO, cofco.com_

**COFCO Biochemical.** From 2007 to 2011, the COFCO group provided RMB17.5 billion of entrusted loans to COFCO Biochemical. Through a series of another RMB 14.2 billion of loans, the competitiveness of COFCO Biochemical in its core businesses, biomass energy and biological chemical manufacturing, has improved.

**COFCO Real Estate, COFCO Property Group.** In 2005, COFCO Financial Co. Ltd. provided a low-interest loan of RMB 150 million to Shenzhen BaoHeng (Group) Co. Ltd. Two months later, the COFCO group acquired 60 percent of the shares of that same company from Shenzhen BaoHeng Investment.
Company for USD 100 million dollars in cash. After this acquisition, the COFCO group became the largest shareholder of Shenzhen BaoHeng (group) Co. Ltd, which became COFCO Real Estate.

COFCO Real Estate was subsequently renamed COFCO Property. It carried out a series of internal acquisitions to integrate real estate resources of the COFCO Group. For example, in 2007, COFCO Property acquired a 100 percent stake in COFCO group’s Pengyuan Real Estate Company and a 51 percent stake in the group’s Chengdu Tianquan Real Estate company. These internal deals greatly expanded COFCO Property operations. In 2009, another series of internal acquisitions took place in COFCO group’s real estate business. Finally, COFCO Property integrated the real estate business into the COFCO group.

The internal acquisition of COFCO Property not only eliminated the competition between different subsidiaries, but also increased both the scale of its residential real estate business and the competitiveness of COFCO Property. In summary, the internal capital

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The Management Experience of Joy City

Joy City as a commercial real estate brand has a unique operating model. For site selection and development, the company acquires properties in the core area of the city and reduces the investment development cycle to facilitate rapid expansion through the group’s financial support. Joy City is positioned as a one-stop shopping mall to attract young and fashionable people. It introduces the most popular fashion brands in the mall and creates an environment where people combine shopping and entertainment.

The innovative business model includes:

- Dining areas are large and concentrated. Traffic flow is improved by a centralized layout.
- Top brands are centralized in one area. Long operating hours extend the time of passenger flow.
- Properties are owned by the company itself. Joy City introduces diversified brands instead of just several large dominating stores. It has replaced large stores with more middle-size (about 800–1000 m²) and small (about 100 m²) stores.
- It has achieved a successful operation through scientific management. The key mechanism is by separating the rent into a fixed rent and a percentage of daily revenue. Joy City has set up effective information systems to support its operation. At the stage of attracting investment, Joy City sets up an information management platform to attract more investors. At later stage, the accounting system, membership system and passenger traffic statistical system provide support for operation of the shopping mall.
- To refine the management of the mall, Joy City built a system of floor managers who serve all the tenants of each floor. The managers use specialized equipment to monitor customer volume. The brand layout and zoning are decided by an analysis of the flow calculation.
- Joy City carries out lots of promotion activities in the mall and cooperates closely with tenant shops.
market through internal borrowing, internal security, internal capital leasing and hosting, internal equity or asset transfer, and internal debt-free capital, serve to maximize the capital utility.

**Global Expansion.** Since 2010, the COFCO group has been integrating into the global food industry chain through its overseas acquisitions. In 2010, it acquired the Chilean Colchagua Wine Company and its vineyard in order to develop its international wine industrial chain. In 2013, COFCO Group acquired 51 percent of Nidera Group’s shares, which is a Dutch company for agricultural goods and bulk goods trading. In 2014, COFCO acquired 51 percent shares of Noble Group Ltd.’s subsidiary, Noble Agricultural. These deals will integrate Noble Agricultural and Nidera’s international production and procurement platform with COFCO group’s existing domestic logistics, processing centers and sales network. These acquisitions will extend the international industrial chains for COFCO group and increase its competitiveness in the international market.

**Industry Structure & Institutional/Regulatory Framework**

**Agricultural Processing Industry Structure**

Since the reform of the rice industry in 2004, the rice processing has become a competitive and deregulated market. The main problems of the rice industry include unbalanced production and sales distributions, concentrated production areas and scattered consumption areas. After deregulation of rice trading and pricing in 2001, rice sales have become completely market-oriented. The players in the rice trading industry are diverse.

The rice processing industry has many enterprises and overproduction. With the establishment and expansion of large and medium-sized rice processing enterprises in recent years, rice processing capacity in the domestic market has continued to increase. Over the next five years some smaller rice processing enterprises will likely be shut down or acquired by other enterprises. At the same time, more foreign companies are rushing into the domestic market, increasing competition in the industry.

Competition has also increased in the flour industry. Flour demand is diversified. Flour processing capacity is rapidly expanding. The Market has few well-known brands or famous products in the market, and little competition. The entry of foreign companies has increased competition in the industry. With more mergers and restructuring of the domestic flour processing industry, the market will become more divided and specialized. With industrial evolution, the weak processing enterprises will disappear and the powerful big ones will be concentrated in industrial clustering area.

**Regulation of Domestic IPO and M&A**

There are several regulations regarding the IPO and M&A of State-Owned Enterprise (SOE). The IPO, transfer of the listed company shares and M&A of SOEs must be approved by state-owned assets supervision and administration institutions at different levels. For the locally owned SOEs, such activities need to be submitted to and
approved by provincial state-owned assets supervision and administration institutions. For State-owned enterprises controlled directed by the central government, management approval documents must be submitted to China Securities Regulatory Commission (CSRC).

**Regulation of International IPO and Cross-board M&A**

Domestic enterprises that are listed internationally must be examined and approved by the CSRC. Since CSRC issued the “Notification of Clarifying Several Points about Enterprises’ Application to be Listed Abroad” and “Regulatory Guidelines for Domestic Enterprises’ Application to Be Listed on Hong Kong Stock Exchange” in 1999, companies in all forms of ownership that are listed abroad receive equal treatment. All the qualified companies with different forms of ownership henceforth can apply to CSRC for going public abroad.

The “Decision of the State Council Regarding Reform of the Investment System” (2004) encourages and supports all kinds of enterprises to invest internationally. This regulation also allows all kinds of enterprises to apply for a foreign loan.

**Mechanism**

**Spinoff and M&A**

COFCO Group’s strategy is to create a fully integrated value chain. When making spinoff and M&A decision, COFCO Group analyzes whether the transaction will:

- Achieve economic scale;
- Create effective operations;
- Realize financial synergy;
- Extend the value chain; and
- Improve competitiveness.

**Maximize Asset Value by Integrating the Internal and External Capital Markets**

The COFCO group has developed a powerful internal capital market through a series of acquisitions. At the same time, to offset the negative effects of diversification due to insufficient or inefficient resource allocations in the internal capital market, COFCO Group spun off two lines of business through IPOs on the Hong Kong Stock Exchange. This gave COFCO Group access to foreign capital. In addition, the listings of COFCO Tunhe and COFCO Biochemical on the domestic stock market in China provided domestic capital sources. Through the Hong Kong and domestic stock markets, COFCO has sufficiently integrated the domestic and overseas capital sources (Figure 3).

**Governance and Incentives**

The COFCO Group’s board of directors comprises nine people. Four of them are
external directors. There are 21 people in its management team, responsible for the overall management, technology management, industry management, human resources management, financial management and legal affairs management.

The COFCO group’s incentive mechanism includes a performance contract, which combines personal responsibility with team performance, to allow for variable payments and non-material incentives. With effective internal motivation, the COFCO group has transparent internal management and regular feedback. Clarification of individual responsibilities further improves the effective incentive mechanism and aligns managers’ individual interests with shareholder’s interests.

Risk management

To reduce the risks of the internal capital market and to better coordinate the group’s internal capital resources, COFCO Group, together with its subsidiary companies, established COFCO Finance Company Ltd. in 2002. The subsidiaries have their own capital accounts established in the finance company and those funds are all managed by the finance company in a coordinated way.

The Mechanism of Performance Evaluation

Businesses of the subordinate companies are divided into several categories including resource business, processing business and brand business. Different performance evaluation criteria were set based on the business type and their development stages. (see tables 3 and table 4). This approach solved the issue of fairness within the group. The goals are set against history performance, anticipations and the performance of its competitors. The COFCO group believes that the market and competitor benchmarking can make it more competitive and focused.

A top-down performance evaluation system is established with the performance and operational indicators set by levels and finally divided to individuals. Every year, the subsidiary companies need to summarize and report their annual performance to the group.

<table>
<thead>
<tr>
<th>Development Stage</th>
<th>Characteristics</th>
<th>Performance Evaluation Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation</td>
<td>Industry status is weak</td>
<td>Decomposition of the medium and long term goals</td>
</tr>
<tr>
<td></td>
<td>Industry concentration is low</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Business model is unclear</td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>The main participants in the industry</td>
<td>The growth and operations of the business</td>
</tr>
<tr>
<td></td>
<td>Faces strong competition</td>
<td></td>
</tr>
<tr>
<td>Mature</td>
<td>A solid industry position of the business</td>
<td>Business revenue</td>
</tr>
</tbody>
</table>

Source: COFCO, www.cofco.com
level and make improvement plans for the
next year. A performance evaluation
committee is established at the group level
to take charge of the entire performance
evaluation work. The performance
evaluation office, which is under the
management of the performance evaluation
committee, is in charge of the daily
operational work. Each branch and business
unit also sets up a performance evaluation team.

Table 4. Business Type Characteristics & Performance Evaluation

<table>
<thead>
<tr>
<th>Business Type</th>
<th>Characters</th>
<th>Performance Evaluation Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource based</td>
<td>Competes with others mainly on basis of its resource and the support of government</td>
<td>Scale, Market Share</td>
</tr>
<tr>
<td>Process based</td>
<td>Competes with others based on products, service, and technology</td>
<td>Scale, Market Share, Technology</td>
</tr>
<tr>
<td>Brand based</td>
<td>Competes with others based on brand</td>
<td>Market Share, Brand, R&amp;D</td>
</tr>
</tbody>
</table>


The group monitors the performance
evaluation of each business unit over the
entire process. Each business unit needs to
propose their own performance targets for
the next year in the group’s annual strategic
meeting. An agreement is negotiated and
signed among the performance evaluation
committee, the performance evaluation
office and each branch company. Based on
this, the monthly, quarterly and semi-annual
operational performance of each branch
company will be monitored and analyzed. At
the end of the year, the committee will issue

the results of the evaluation and feedback
and provide suggestions for improvement.

The leader’s performance is evaluated mainly
based on the performance of the department
for which he or she is responsible.
Performance in fulfilling important annual
tasks and other important duties are also
considered. The performance evaluation
committee organizes the evaluation of board
members’ performance by the board of
directors. Managers’ appraisal is mainly
based on their unit’s performance. The group
has built an evaluation system based on the
aspects of professionalism, personality,
performance, and leadership. This evaluation
system is the basis of the managers’
incentive, promotion, and training.

The evaluation of individual performance is
based on the duties and goals of the
department. The individual’s performance
index is a decomposition of the unit’s goal.
The leader evaluates the performance of an
individual based on the individual’s
performance index. The department puts the
results of the performance evaluation and
the results of the individual’s capability
evaluation together to give out a composite result. The composite result is ranked by a special method. The final result becomes the basis of the employee’s incentive, promotion, and training. All in all, the COFCO group has built a scientific and reasonable performance evaluation system based on different performances and evaluation systems.

Financial Impact

Following continuous M&A, reconstruction, and internal asset optimization, COFCO’s total assets were more than US$ 57 billion in 2014. Currently, its grain storage capacity is 15 million tons, its annual processing capacity of grain is 84 million tons and annual port transit capacity of grain is 44 million tons.

However, the acquisitions lead to some integration problems for different companies and had a negative influence on the net income of the group. As a state-owned enterprise, COFCO group’s net income is also influenced by strategic grain purchases (Figure 4). Now, its assets and institutions are distributed in more than 140 countries.

The group’s operation of the capital market can influence the performance of its subsidiaries. For example, the profitability changed after the spinoff. The management fee and financial asset ratio fall after the spinoff of COFCO International Co. Ltd. This decrease shows that the cost control ability of two companies is improved respectively after spinoff (see table 5).

![Figure 4. COFCO Revenue from Operations & Net Income, 2009-2013 (US$ million)](image)

![Table 5: Financial Performance After Spinoff](table)

The COFCO Group acquisition of Mengniu Dairy enabled it to address its financial problem. Before the acquisition, Mengniu was embroiled in the “melamine scandal” and a “valuation adjustment mechanism” case. In the second half of 2008, Mengniu group’s net current assets dropped to negative RMB 664 million (Figure 5). After Mengniu was acquired by the COFCO group the net current assets improved.

Through a series of asset management actions, COFCO has improved its employee salaries and welfare. At the same time, brand awareness and social recognition of COFCO have also improved.

**Stakeholder Contributions and Impacts**

For the government, COFCO, as one of the “four” pilot reform state-owned capital investment companies, has been exploring the mixed ownership reform. Through continuous asset optimization configuration, COFCO has added value to state-owned assets. At the same time, the COFCO group is competitive with international rivals and protects national food security.

For consumers, the COFCO group inhibited the “big four” control of the domestic market and ensured price stability through creating its own brands.

For society, the COFCO group is guided by the fully integrated value chain strategy and has built the supply system from farm to table. It has completely solved the food safety issues and safeguards people’s daily life.

**Figure 5. Mengniu Current Assets Change Following Acquisition by COFCO (RMB 000)**


**Other Impacts**

COFCO developed from a grain and oil trader to China’s leading diversified products and service provider in the grain and oil industry.
Reference


Union Pacific—
Focusing on the Core
Railway Business

Relevance to the Chinese
Railway Sector

During the mid-late 1990s the management of Union Pacific Railway (UP) adopted a significant change in business strategy. Previously, UP had maintained large investments in non-railway businesses. These included subsidiary companies in the solid waste, trucking, and natural resources sectors (i.e. oil and gas). However, during the 1990s UP sought to redeploy capital towards expanding and optimizing its core railway business. UP’s transition towards a “pure” railway had three pillars:

- Divestiture of selected non-railway assets to free up capital;
- Acquisition of the Chicago and Northwestern and Southern Pacific railways to grow railway-related business using a mixture of equity and debt; and
- Intensive capital investment and rationalization of railway assets to improve efficiency.

Between 1994 and 1996 UP went from a railway-intensive conglomerate to a nearly-pure railway business. This transformation was later completed in 2003 with the spinoff of UP’s trucking business, Overnite Corp. UP had originally attempted to sell its trucking business in 1998 but failed to receive a favorably priced offer.

UP’s shift in strategy offers many valuable lessons, particularly because the outcome was mixed. On the whole, UP’s decision to focus on its core railway business appears to be a success when looking at long term efficiency metrics. However, the history of UPs transition shows that the route to achieving operational improvements “on the ground” was much more difficult than executing the financial transactions that enabled it to take place.

The relevance lessons for China could be:

- **Focusing a railway operating company’s efforts around a core railway business can help drive operational improvements.** Becoming a better railway is likely to require substantial investment and management effort before results become visible to customers. Reducing the amount of time and capital tied up in other endeavors is critical to allowing a sharper focus.

- **Major railway restructurings are complex and likely to be disruptive in the short run but can be very positive in the medium to long run.** This is true in both developed and developing country contexts. As the UP case shows, major operational changes and the political economy of labor relations in particular can be disruptive. However, working through the initial difficulties can unlock longer term, sustainable efficiencies.

- **Consistently making sound commercial investments is essential for improving operating results.** The nature of railway
assets means that restructuring is a long term proposition. Capital programs span multiple years. Their relative success depends on consistently making good investments and optimizing the use of assets – regardless of shorter term financing decisions. Evidence from the UP experience demonstrates how consistently sound investments can even overcome a difficult start to restructuring.

- **The right regulatory framework applied at the right time helps customers and the broader economy “win.”** Capable regulators can help ensure that restructurings serve customers and the broader economy rather than a narrow group of stakeholders. In particular, the UP example shows how regulatory mechanisms can help distribute the benefits of restructuring more broadly.

**Impact Summary**

The longer term impacts of UP’s transition in technical performance are positive. Specifically, there are indications that, after merging with CNW and SP, the combined company eventually realized the efficiencies envisaged at the time of merging.

The financial impacts of UP’s transition appear negative over the short and medium term. Most notably, return on equity, return on assets, and return on invested capital underperformed immediately following the acquisitions. This implies that UP either overpaid for its targets and/or struggled to integrate operations quickly enough to deliver for shareholders. Historic underinvestment in the former SP’s assets and difficulties with unionized labor may be among the primary causes of this.

The medium-term impact on customers following UP’s transition is mixed but predominantly positive. Despite complaints and reduced patronage immediately following UP’s restructuring, customers eventually gave UP more of their business at a rate that exceeded the US national average growth in railway traffic. This suggests that actual satisfaction with UP’s transition may have been greater than what was initially expressed.
**Motivation**

The 1980s and 1990s saw an unprecedented trend of mergers and acquisitions among class 1 (i.e. large) railways in the United States. UP’s change in business strategy took place within this context during a period when railway combinations were seen as necessary to remain competitive – especially relative to road transport. This appears to be the driving force behind UP’s decision to divest of non-railway businesses and redeploy capital towards becoming a “pure” railroad.

This was also a time when the US regulatory framework for railway mergers was still evolving under the oversight of the Surface Transport Board (STB). Eventually, worries about reduced competition compelled the STB to temporarily halt class 1 railway mergers in 2000 and to subsequently impose a higher burden of proof on all future merger applications. Though the STB’s temporarily ban was lifted in 2001, no US Class 1 railway mergers have occurred since.

**Experience**

The most notable event in UP’s transformation were: (i) the sale of non-railway railway businesses in 1994 and 1995; and (ii) railway acquisitions in 1995 and 1996. (See Figure 1 and Table 1.)

In 1995, UP purchased the Chicago and North Western Transportation Company (CNW) for US$1.4 billion in cash. CNW’s east-west mainline gave UP a direct route from Los Angeles to Chicago. At the time of the purchase, UP already owned 25 percent of CNW, and CNW moved UP’s trains under a haulage agreement.

This was followed in 1996 with merger with Southern Pacific Railway (SP). The SP merger was particularly influential in shaping UP’s business around a renewed focus on railways alone. The merger cost UP US$ 4.1 billion. Equity share conversions financed 60 percent of this price with cash paying for the

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**Table 1: Key Indicators for UP**

<table>
<thead>
<tr>
<th></th>
<th>1994 (pre-acquisitions)</th>
<th>1996 (post-acquisitions)</th>
<th>2001 (5 years post)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network</strong></td>
<td>22,266 km mainline</td>
<td>44,104 km mainline</td>
<td>44,341 km mainline</td>
</tr>
<tr>
<td></td>
<td>5,896 km branch lines</td>
<td>13,568 km branch lines</td>
<td>9,709 km branch lines</td>
</tr>
<tr>
<td><strong>Freight traffic</strong></td>
<td>379,473</td>
<td>594,958</td>
<td>834,744</td>
</tr>
<tr>
<td>(million revenue tkm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Passenger traffic</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Employees</strong></td>
<td>45,000</td>
<td>54,800</td>
<td>61,800</td>
</tr>
</tbody>
</table>

*Source: Union Pacific 10-K reports.*
remaining 40 percent.

Prior to these major purchases, the market value of UP’s debt and equity was approximately US$ 8-9 billion. The CNW acquisition was relatively small compared to the overall size of UP. In contrast, the SP merger increased the size of UP’s railway business by about half.

UP used a mixture of debt issuances and equity freed up by the divestiture of non-railway assets to finance both acquisitions. Between 1994 and 1997, UP’s acquisitions and capital investment program increased the net value of railway assets on its balance sheet by nearly three times. In 1993 railways constituted only 70 percent of UP’s net assets with non-railways businesses accounting for the balance. By 1996, railways constituted 97 percent of UP’s net assets.

**Initial hiccups:** Following the acquisitions, UP’s network saw service disruptions and delays that were attributable to high demand for rail transport combined with the poor condition of the former SP network – particularly around the Houston area in 1997/1998. This contributed a knock-on effect to congestion and delays that affected service throughout the entire Western USA. UP was able to resolve disruptions eventually but not before the revenue tkm carried on the UP-SP network dropped considerably (Figure 2).

Service disruptions also had a negative impact on perceptions regarding the UP-SP merger. In 2000 the National Transportation Industrial League conducted a survey of 47 major UP customers to gauge their perceptions of UP pre and post SP merger. 94 percent of UP customers and 70 percent

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**Figure 2. Revenue ton-km (1996-2001)**

![Graph showing Revenue ton-km from 1996 to 2001 for BNSF and UP.]

Source: Surface Transportation Board R-1 reports

**Figure 3. Utilization of the UP network**

![Graph showing Index of Revenue km per network km from 1998 to 2003 for UP, BNSF, and average of Class 1 RRs.]

Source: Surface Transportation Board R-1 reports
of former SP customers ranked services worse than the pre-merger period.

**Getting it right:** UP’s acquisition of CNW and SP had the immediate effect of expanding the single network by 18,388 km (more than double its 1994 length). Though integrating operations proved difficult (see above), UP eventually succeeded in capturing important efficiencies that this larger network had to offer. Most notably, the integrated network gave shippers access to direct routes that saved time and offered increased reliability. For example, the CNW Acquisition gave UP a direct line from Los Angeles to Chicago, a main intermodal route. The combined UP-SP merger created a single-line rail service along the I-5 interstate corridor between the US Pacific Northwest and destinations in California. UP’s combined network allowed for new service offerings that specifically aimed at competing with the road trucking industry. One offering this provided was “5-7-9 Service” which promised shipment from the Pacific Northwest to Northern California within five days, Southern California within seven days and Las Vegas/Phoenix within nine days.

Along with rationalization of track assets, the convenience of more direct routes helped increase utilization of the UP network faster than the national average for class 1 railways in the years following the acquisitions. Increases in the utilization of UP’s post-acquisition network also significantly outpaced the nearest competitor, the Burlington Northern Santa Fe Railroad (BNSF). (See Figure 3.)

**In retrospect:** It is worth questioning whether the network congestion problems encountered following the UP-SP acquisition would have occurred regardless of the merger. SP’s financial difficulties had resulted in chronic underinvestment in infrastructure that may have produced technical shortcomings regardless of who owned the assets.

“Sweating the assets”: Aside from offering more direct routes and a longer network, UP also achieved three key improvements in the post-merger years:

![Figure 4. Evolution of the UP network](source: 10-k reports)
Rationalization of track assets;
Increased use of rolling stock assets; and
Intensive capital investment in rehabilitation / refurbishment.

In the years following the acquisition, UP slowly divested of or abandoned less profitable lines. (See Figures 3 and 4.) Most notably, UP’s branch line network shrank by 2,398 km (28 percent) in the five years between 1996 and 2001. This helped UP focus its “pure” railway business on a core network of more profitable routes. UP’s strategy helped to capture increased “economies of density” whereby more freight traffic moved over a smaller, more efficient route network (see figure 4).

Acquiring CNW and SP roughly doubled the number of freight wagons that UP owned or leased. After integrating operations, UP reduced this fleet while increasing the number of car loads carried. A key part of this strategy entailed reducing the amount of time that freight wagons sat idle in between loads.

Improved planning, preventative maintenance, and consolidation of rail yards contributed to better utilization of freight wagons. Between March 1998 and March 2000, UP reduced freight car terminal dwell times by 34 percent (40 hours to 26 hours on average). UP also significantly increased the use of “private line” wagons (i.e. freight wagons owned by shippers themselves). Between 1996 and 2001 the loaded private wagon-km traveled on the UP network increased by 71 percent. This effectively allowed UP to leverage the rolling stock investments of others rather than tying up its own capital.

Following the merger with SP, UP significantly increased capital investments in network rehabilitation and maintenance (see figure 6). This was in part a condition of
merger approval that STB had required. During the three years after 1996 UP spent roughly 1/3 more money on capital expenditures per km of its network than in the three years prior to 1996 (see figure 6).

**More efficient use of train crews:** The combined UP-SP network enabled UP to establish a “hub and spoke” model for crewing trains. This model based crews at one of the combined network’s major terminals. Crews could then serve any route emanating from their respective “hub.” Hubbing crews proved more efficient for utilizing human resources than the prior model of dedicating crews to specific routes.

**Who won?** “Winners” included railway customers who gained from the economies of scope that UP’s larger post-merger network provided. Over the medium term, a sharper focus on railways helped UP to get more from its assets and to offer a better service. However, the largest winners may have been unionized workers and the government of the United States. SP’s railway assets and finances were in relatively poor health at the time of UP’s acquisition. The merger with UP may have helped avoid a politically difficult decision about government intervention if SP were to become financially distressed. The involvement of politically influential unions would have made any decision much more complicated and contentious. As UP’s annual reports show following the acquisition, streamlining staff resources following the SP merger was difficult.

A key lesson from the UP case is that major railway restructurings can be tremendously disruptive in this short run. This is evident in the financial and technical performance of UP in the years immediately following its acquisitions. The US regulatory framework around the UP’s mergers contributed additional challenges by requiring concessions as a condition of merger approval. The regulator compelled UP to offer trackage rights, execute labor agreements with unions, and to promise certain levels of capital investments as a condition of merger approval.

**Who lost?** In retrospect, shareholders were among the “losers” over the short run in UP’s acquisition as they suffered dilution from the issuance of new shares and sub-par returns during the integration of SP’s operations. Additional debt service obligations also consumed cash that may have otherwise funded dividends. Aside from debt service, much of UP’s cash went into funding capital investments aimed at rehabilitating SP’s aging assets that had suffered from years of under investment.

An important positive point is that UP was eventually able to capture considerable efficiencies once it managed its combined railway assets effectively. There is clear evidence that UP increased the utilization of its network faster than its main competitor, BNSF, and the overall US rail industry. In part, this reflects prudent capital budgeting decisions and targeted reductions of less profitable branch lines. Similarly, UP achieved increased rates of utilization in its fleet of rolling stock throughout its transition. The absence of distractions from non-railway businesses may have helped UP’s management to achieve these critical improvements.
Industry Structure & Institutional/Regulatory Framework

A the time of UP’s began its transition, the railway industry in the United States included eleven large, vertically integrated, private investor owned freight railways. The industry consolidated throughout the 1990s and 2000s. At present the US has four large and three smaller “class one” railways in addition to more than 500 smaller railways.

The legal and regulatory framework is defined by three laws:

- **The Interstate Commerce Act (1887)** created the basic regulatory and legal framework for railways, assigning them a common carrier and passenger service obligations, limiting reductions in track/service, regulated tariffs, and forbade discrimination in service/tariffs.

- **The Railroad Revitalization and Reform Act (1974)** modified the Interstate Commerce Act to introduce some flexibility in rates, allow more track/service reductions.

- **The Staggers Act (1980)** modified the Interstate Commerce Act and Railroad Revitalization and Reform Act to provide for substantial deregulation of freight tariffs, allow railways to contract with customers, eased restrictions of railway mergers and allowed the railways to close and divest railway lines with insufficient traffic.

- **The Rails to Trails act in (1983)** also enhanced the ability of railroads to abandon freight service on specific lines.

The Preliminary National Rail Plan, prepared by the Federal Railroad Administration, sets the national government’s priorities for rail: developing high speed passenger rail service, supporting high performance freight service, intermodal connectivity and safety.

The Surface Transportation Board (STB) is the economic regulator of railways, with jurisdiction over rail mergers and limited authority over railway prices.

Mechanism

**Divestitures of non-railway assets**: the starting point of UP’s transition was the sale of non-railway assets, namely:

- US$ 225 million divestiture of a waste management business in 1994; and
- US$ 2.4 billion spinoff of a natural resources business in 1995.

The spinoff of UP’s natural resources business in particular helped to free up capital for redeployment on railway related endeavors. In 1998 UP also sought to sell its stake in a less-than-truckload shipping business known as “Overnight.” However, this divestiture was delayed until 2003 when UP could secure a more favorable price.

**Equity and debt – more of both**: the financial mechanisms that UP used to execute its change in business strategy included corporate debt instruments and issuance of additional equity shares on the New York Stock Exchange. On balance, UP used more debt than equity in funding its transformation and increased its lease-
adjusted debt to equity ratio from roughly 1 in 1994 to 1.5 in 1996. (See Figure 7.)

**Stretching the balance sheet:** aside from conventional debt and equity financing, UP made greater use of leasing arrangements. While these instruments have debt-like features (i.e. a promise of future payment), provisions in US Generally Accepted Accounting Principles enable lessors to avoid capitalizing some types of leases on their balance sheet as debt liabilities. The net effect is to provide more accounting headroom for borrowing for other purposes.

**M&A strategy:** One of the interesting aspects of the UP-SP acquisition was that the networks of each company both significantly overlapped and complemented each other. This resulted in business case for the acquisition that was both about cost savings and network coverage. Overlaps along several lucrative routes such as Oakland-Denver, Houston-New Orleans, and San-Antonio-Chicago offered clear opportunities to achieve cost savings by eliminating redundancies. However, the SP network also gave UP access to routes along the US West Coast and Southwest region.

**Governance and regulation:** The UP-SP merger underwent extreme scrutiny by US authorities (Namely the Surface Transpiration Board and Department of Justice) to ensure it complied with relevant anti-trust regulations and railway laws. Trackage rights in particular became a key issue due to concerns over reduced competition following the elimination of one freight services competitor. Most notably, this focused around the ability of another competitor, BNSF, to access segments the post-merger UP-SP network. UP ultimately conceded trackage rights along more than...
6,000 km of its network including a key segment between Denver and Oakland. In addition, the STB also imposed requirements relating to negotiating with unionized labor prior to combining UP and SP’s operations.

**Financial Impact**

The financial impacts of UP’s transition were less positive for creating shareholder value over the short run. In the years immediately following the acquisitions, UP’s Return on Assets (ROA), Return on Equity (ROE), and Return on Invested Capital (ROIC) all underperformed relative to pre-acquisition trends and the overall trend in US GDP (figure 8). Despite an initial spike at the time of the acquisitions, UP’s share price significantly underperformed relative to the S&P 500 (figure 9).

Poor financial performance immediately following the acquisitions suggests one or more of the following: (i) UP overpaid for its acquisition targets; (ii) the cost of regulatory concessions given to obtain approval for the SP merger exceeded expectations; or (iii) integrating different operating companies offered more challenges or less financial benefits than envisaged. As of 2001/02 BNSF was carrying only 5 percent of the freight traffic along UP’s key central corridor from the mid-west to California under the trackage rights regime prescribed by the STB. This suggests that trackage rights were not the primary reason why shareholder’s lost value initially.

Rather, the most likely reasons why shareholders initially lost is that UP struggled more than anticipated to integrate operations with SP. This challenge culminated in 1998 which became and “annis horribilis” for both technical and financial performance.

**Other Impacts**

One of the interesting impacts that resulted from UP’s transformation is a change in the underlying riskiness of the company’s assets (measured by an “asset beta”). In financial theory, expected returns on a firm’s equity reflect a combination of susceptibility to exogenous market risks (i.e. systemic risks) plus an additional measure of risk due to the firm’s financial structure. Interestingly, the perceived underlying riskiness of UP’s assets appear to have declined following the decision to refocus on a “pure” railway business. (See Figure 10.)

A lower asset beta suggests that the restructured UP was less dependent on prevailing market conditions. For a railway this is significant given the relationship between general economic activity and freight volumes. One explanation for the shift could be that UP’s efficiency improvements and the economies of scope provided by its integrated network offered a competitive advantage that made returns...
more reliable regardless of economic conditions.

**Stakeholder contributions and Impacts**

*Train crews:* one important observation is that a large part of UP’s labor force was “off limits” to restructuring due to deals struck with STB and labor unions that represented train crews as a condition of the merger between UP and SP. This reflects some of the difficult political economy dimensions and influence of railway labor in the US.

Though UP did layoff approximately 5,000 employees (see Figure 11), the majority of layoffs did not involve train crews. In this respect, the former SP’s train crews may be amongst the biggest winners as they traded a financially unhealthy employer for a more sustainable one. Though UP’s layoffs occurred gradually in the post-acquisition years it is important to note that staff reductions were concentrated in functions where organized labor’s influence was less pronounced. The rate of staff reductions between 1996 and 2000 also appears more in line with natural attrition rather than a sudden redundancy program.

Broader economic interests: the STB, Federal Trade Commission (FTC), and Government Accountability Office (GAO) undertook ex-post reviews regarding the impact of UP’s acquisition in an effort to assess whether economic benefits materialized as UP had promised to regulatory authorities. While it is difficult to disentangle UP-specific results from overall industry and economic trends, these reviews were generally positive about broader public benefits achieved. Most notably, the STB observed that inflation-adjusted freight rates declined 9.2 percent in the Western USA (served by the UP/SP network) vs. 5.1 percent in the Eastern USA. The GAO found the UP-SP merger attributable for reduced rates on four of the six commodity routes it studied.
### Table 2: Changes in UP’s Annual Financial Results between 1994 and 2001 (US$ Millions)

<table>
<thead>
<tr>
<th></th>
<th>Income Statement</th>
<th>Balance Sheet</th>
<th>Cash Flow</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Change</td>
<td>% change</td>
<td>Change</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td></td>
<td>Operations</td>
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<tr>
<td>Rail services</td>
<td>5,482</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(280)</td>
<td>-15%</td>
<td></td>
</tr>
<tr>
<td>Government support</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>(1,307)</td>
<td>-53%</td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td>4,175</td>
<td>54%</td>
<td></td>
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<tr>
<td><strong>Operating Expenses</strong></td>
<td></td>
<td></td>
<td><strong>Investing</strong></td>
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<tr>
<td>Wages &amp; benefits</td>
<td>1,816</td>
<td>74%</td>
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<tr>
<td></td>
<td>(746)</td>
<td>37%</td>
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<td>Materials &amp; energy</td>
<td>968</td>
<td>109%</td>
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<tr>
<td></td>
<td>5,484</td>
<td>229%</td>
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<tr>
<td>Depreciation</td>
<td>1,805</td>
<td>145%</td>
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<tr>
<td></td>
<td>5,321</td>
<td>113%</td>
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<tr>
<td>Other</td>
<td>1,368</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>102</td>
<td>3%</td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td>4,653</td>
<td>89%</td>
<td></td>
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<tr>
<td><strong>Operating Income</strong></td>
<td></td>
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<td><strong>Net Change in Cash</strong></td>
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<td>Interest &amp; other financial exp.</td>
<td>354</td>
<td>202%</td>
<td>(8)</td>
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<tr>
<td>Income before Income tax</td>
<td>635</td>
<td>71%</td>
<td></td>
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<tr>
<td>Income tax</td>
<td>237</td>
<td>72%</td>
<td></td>
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<tr>
<td><strong>Net Income</strong></td>
<td>420</td>
<td>77%</td>
<td></td>
</tr>
</tbody>
</table>

Source: UP Corp. 10-K Reports.
References


Russia: Private Investment in Freight Rail Rolling Stock

Relevance to the Chinese Railway Sector

The experience of private sector investment in Russian rail rolling stock illustrates that significant private sector financing can be attracted to the railway sector dominated by a government-owned railway, provided that the investment opportunity offered is potentially profitable and the legal framework is clear.

The relevance lessons for China could be:

- Significant private financing can be attracted to the rail sector for rolling stock if the proper pricing structure is put into place and the legal structure for leasing is sound.

- The railway sector can function smoothly and the dominant railway carrier can be financially sound with privately-owned rolling stock.

- Attracting private sector financing to rolling stock investments can free the railway’s capital for other investments.

- With a free market for wagons, the railway’s own rolling stock can be leveraged to raise financing.

Impact Summary

Russia was able to attract more than US$ 50 billion in private investment to the rail sector by creating a structure that allowed private ownership of railway wagons.

Motivation

After the dissolution of the Soviet Union, the Russian railway industry encountered great challenges. The volume of profitable freight traffic declined precipitously, loss-making passenger traffic increased as a share of the total traffic, operational performance deteriorated, financial losses mounted and assets deteriorated because the railways could not generate sufficient funds for their replacement.

The government of Russia initiated a reform program intended to stabilize the quality and safety of service, reduce costs and meet the economy’s demand for transport services. One of the means for accomplishing this was attraction of private investment into rolling stock.

Experience

In the decade between 1988 and 1998, the Russian railway experienced a severe decline in traffic, with passenger traffic dropping 44 percent, and the profitable freight traffic that subsidized it declining by 61 percent. This placed the railway sector under great financial strain and investment declined. (See Figure 1.)

In response, the government of Russia designed a reform program that corporatized the government railway and allowed private ownership of rolling stock.
This reform was initiated by the Federal Law 153 in 1995, which defined the legal basis for the organization of the sector and legal relationships between the entities, and a series of government decrees in 1997 – 2003 that define the reform program. In 2003, the “Federal Law on Railway Transport in the Russian Federation,” and the “Charter of Railway Transport in the Russian Federation”, separated the Ministry of Railways into the Federal Railway Transport Agency (an agency in the Ministry of Transport that regulates rail transport) and Russian Railways (RZD, a state-owned company providing railway infrastructure, passenger and freight services).¹ Also in 2003, Decree No. 585 established RZD as a joint stock holding company.

The new laws/decrees created a legal basis for non-RZD railway operators and carriers, and required RZD to provide open access to its railway infrastructure for all licensed carriers and operators.

• An operator provides wagons, which are moved in trains managed by RZD. The operator directs RZD where to move its wagons, but is not involved in the actual moving of them. Many operators also provide freight forwarding services and arrange loading and unloading services.

• A carrier provides both wagons and locomotives and carries out train operations. A carrier is liable for all events that occur in the train operation and has an obligation to supply rail service to any customer that requests it.

¹ European Conference of Ministers of Transport (2004), Regulatory Reform of Railways in Russia p. 34.
At this time, only RZD and an RZD joint venture are licensed carriers.

The RZD railway tariffs were separated into three components for infrastructure, wagons and locomotive and customers could supply their own wagons and save wagon portion of the tariff.

Under the new legal structure, wagon operators and rolling stock leasing companies emerged as private businesses. The operators functioned as freight forwarders that either owned or rented wagons and handled all the customer’s rail logistics. Rolling stock leasing companies purchased and leased wagons. By 2005, one-third of the country’s freight wagons moved in privately owned wagons and by 2013, private operators owned 80 percent of the wagon fleet.

RZD organized itself into business units including several that became wagon operators. RZD subsequently raised capital by selling shares in several of these companies:

- Fifteen percent of Transcontainer was sold in a private offering in 2008, with 9.25 percent purchased by the European Bank for Reconstruction and Development and 5.75 percent by others. Another 35 percent of shares were sold in an initial public offering in 2010, which raised US$ 400 million. This increased the private share to just under 50 percent.

- First Freight, which owned roughly half of RZD freight wagon fleet was sold at auction. In 2011, Independent Transport Co. paid Rubles 125.5 billion (US$ 4.3 billion) for 75 percent ownership. It paid an additional Rubles 50 billion (US$ 1.6 billion) for the remaining 25 percent in 2012.

Currently, RZD owns 54,200 wagons directly (4.5 percent of the overall fleet of 1.2 million wagons), which are used for its internal transport. It has ownership interests in commercial wagon operating companies such as Transcontainer and First Freight, which own another 198,700 wagons. Approximately 960,000 wagons are owned by wagon operators unaffiliated with RZD. The investment of these owners has brought more than $50 billion of capital to the sector, freeing RZD to use its capital for other purposes.
Industry Structure & Institutional/Regulatory Framework

The railway industry in Russia includes:

- RZD, the main railway freight and intercity passenger carrier and the owner and manager of the main railway infrastructure.
- Twenty-four suburban passenger railway companies, which are jointly owned by RZD and regional authorities.
- Numerous freight wagon operators that manage wagons fleets and provide wagons to customers together with managing the customer’s rail traffic using RZD infrastructure.

The legal and regulatory framework specific to railways includes:

- The Federal Railway Transport Agency (Roszheldor), an agency in the Ministry of Transport that oversees rail transport policy and licenses operators.
- The Federal Service for Tariffs, which regulates railway tariffs charged by RZD for infrastructure and locomotives.\(^2\)
- The Anti-monopoly ministry, which regulates competition.
- The Federal Service for Transport Supervision (Rostransnadzor) which regulates safety.
- The Federal Environmental, Industrial and Nuclear Supervision Service (Rostechnadzor) which regulates transport of hazardous materials.

The laws governing leasing allow the lessor to repossess the rolling stock, if the lessee fails to pay and operating lease payments are deductible from income for tax purposes.

Mechanisms

Infrastructure Access

The new laws/decrees created the legal right for non-RZD operators and carriers to operate on the Russian railway infrastructure. The regulatory structure to implement this law includes licensing of operators and carriers, equipment certification and safety regulation.

Licensing. Roszheldor is responsible for licensing wagon operators, which have to be legal entities with an address in Russia, a good reputation and sufficient financial means. Roszheldor is also responsible for licensing rail carriers, although in practice it has only licensed RZD-affiliated companies.

Equipment certification. All wagons are certified by the Register of Certification of Railway Equipment (Register), under Roszheldor. The Register certifies wagon designs and standards, the production facilities that manufacture the wagons, and

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\(^2\) The rates charged by RZD wagon subsidiaries are not regulated.
the facilities that can maintain and repair wagons. Each wagon model must pass certification tests before being certified: static tests can be performed by a number of test centers including some private ones; dynamic tests are performed by the All Russia Railway Research Institute, which is an RZD subsidiary.

Safety. Roztransnadzor licenses wagon operators and carriers for safety. Wagon maintenance procedures and schedules are established by the wagon manufacturer and approved by the Register. Rostransnadzor is responsible for enforcing that the approved maintenance procedures and schedule are followed, so that all wagons operated on the network are in sound condition.

Rostechnadzor is responsible for licensing operators to handle hazardous materials. Such licenses require demonstration of technical capacity to handle such goods safely, including appropriate systems for managing risk and adequate insurance.

Routine safety inspection of wagons is carried out by the carrier—RZD—for both its own and operators’ wagons.

Tariffs

The new laws/decrees created the legal right for non-RZD entities to operate on the Russian railway infrastructure. But it was the change in the tariff structure that created the incentive for private companies to invest in railway rolling stock.

Railway rates for freight transportation were published in a tariff titled “Price List 10-01.” This tariff structure of the Russian Railways was based on past practice, adapted to accommodate the new structures in the rail industry. The tariff was split into components for the use of RZD infrastructure (about 55 percent), locomotives (25 – 30 percent) and wagons (15 – 20 percent). Customers had the option of using RZD wagons at the regulated tariff price or wagons managed by a non-RZD operator at a market determined price. Many chose the option of a non-RZD operator. Reasons included:

- Cost. For products with a high tariff, the wagon component in the tariff was higher than the price charged by the wagon operator.
- Wagon supply. Certain types of wagons, such as tank wagons and gondolas were in short supply. Contracting with an operator would assure the customer that wagons would be available when the customer needed them.
- Service. Operators provided wagons on a timely basis and also acted as freight forwarders, dealing with RZD paperwork, monitoring the progress of shipments and making sure that the rail transportation functioned reliably.

Over time, more and more wagons were supplied by commercial operators at market prices. After RZD put most of its wagons into commercial subsidiaries, less than five percent of wagons moved under the tariff rates for wagons.
**Governance of RZD**

RZD is an open joint stock company. At the highest level, it is governed by a General Meeting of Shareholders. Since the Russian Federation is RZD’s only shareholder, decisions of the annual shareholders meeting are confirmed by government order. The General Meeting of Shareholders confirms the appointment of directors.

The key corporate management body is the Board of Directors, who guide and oversee the company. Their main task is “to pursue a policy ensuring dynamic development of the Company, increasing both the sustainability of its activity and its profitability.” The RZD board has eleven members: six represent the Russian Federation and five are fully independent directors. The President of RZD is the only management representative on the Board of Directors.

The Board of Directors has three standing committees:

- Strategic planning;
- Audit and risk; and
- Human resources and compensation.

To ensure proper oversight of management, the audit and human resources committees are headed by independent board members. The independent financial auditors report to the audit committee, not to the company management.

Day to day management of RZD is carried out by a 24 member management board. This board includes the President, Vice Presidents, Directors of RZD subsidiaries and other company leaders.

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Financial Impact

The main financial impact of the introduction of privately owned rolling stock in Russia was the attraction of more than US$ 50 billion in private investment to the railway sector.  

RZD’s financial situation has been profitable and relatively stable throughout the transition to private ownership of wagons. Revenues have increased steadily due to growing traffic and increasing prices. (See Figure 2.) Regulated freight tariffs (for infrastructure and locomotives) have mostly kept pace with inflation. However, RZD revenue per traffic unit has grown less rapidly than inflation (CARG=7.2 vs 9.5 percent). While RZD can now charge a market rate for its wagons (through its operator subsidiaries), it has lost much of the market for providing wagons to other operators, resulting in less revenue per unit.

RZD now receives a modest level of operating subsidy from federal and municipal governments for operating loss-making passenger services. This amount to three percent of revenue in 2013.

RZD has maintained a very conservative capital structure. (See Figure 3.)

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5 Revenue per traffic unit (traffic units=ton-km+passenger-km).
The debt/equity ratio has ranged from 0.17 to a high of 0.43, and currently stands at 0.24. While RZD has raised significant debt financing—current debt is RUB 547 billion (about US$ 17 billion)—the company is not highly leveraged.

RZD has been able to make substantial investments. Capital expenditure has grown over time, from RUB 96 billion (US$ 3 billion) in 2003 to RUB 566 billion (US$ 18 billion) in 2013. (See Figure 4.) With private investors supplying wagons, RZD has been able to direct the bulk of that financing to infrastructure and other needs. In 2013, for example, only 3 percent of RZD’s additions to fixed assets was for wagons.

The largest source of financing for investments has come from operating cash flow. Debt has also been an important source, although in 2007 and 2010, RZD repaid more debt principle than it raised in new debt. In 2011, sale of First Freight contributed significantly to RZD cash.

In recent years, capital contributions by the shareholder have become an increasingly important source of financing. These contributions are made to support investment in specific infrastructure of interest to the government of Russia such as construction of transport infrastructure for the Sochi Olympics, reconstruction of the Trans-Siberian and Baikal-Amur Mainline railway, and double tracking access to seaports. RZD does pay dividends to its shareholder, but these are very small compared to the shareholder’s capital contributions and to the use of cash for capital investment.

Other Impacts

Attracting private financing for rail rolling stock enabled the railway sector to respond to the substantial recovery of rail traffic that occurred since 2003, with sufficient wagons to serve the traffic. In the process, it created a whole industry of railway wagon owners and operators.

The increase in wagons dedicated to specific services has made managing traffic on the network more complicated for RZD, because there are numerous private fleets on the network. It has also resulted in an increase in empty wagon km, because more traffic is served using unit trains, which have a 100 percent empty return ratio. This represents a tradeoff between operational efficiency and providing better customer service. Finally, prices to customers has increased because they are now paying market rates for railway wagons.

Stakeholder contributions and Impacts

Customers: Railway customers have enjoyed better service at a higher cost.

Employees: RZD employment has declined by about 25 percent since the company’s creation. Average annual wages and benefits per employee have increased substantially from RUB 156,465 (US$ 5,098) in 2003 to RUB 772,786 (US$ 24,273) in 2013.

Government. With return on assets at 1 percent, return on equity at 1.6 percent and minimal dividends, RZD is not a stellar financial investment for the government of Russia. However, RZD carries out the responsibility as the national carrier and rail
infrastructure owner (rail carries 85 percent of non-pipeline freight in Russia) while maintaining profitability and positive returns.
### Table 2: Changes in RZD Annual Financial Results between 2003 and 2013 (RUB billions)

<table>
<thead>
<tr>
<th>Income Statement</th>
<th>Change</th>
<th>Balance Sheet</th>
<th>Change</th>
<th>Cash Flow*</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td></td>
<td>Assets</td>
<td></td>
<td>Operations</td>
<td>+ 183</td>
</tr>
<tr>
<td>Rail services</td>
<td>+ 1000</td>
<td>Current assets</td>
<td>+ 283</td>
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<tr>
<td>Government support</td>
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<td>PPE (net)</td>
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<td>Investing</td>
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<tr>
<td>Other</td>
<td>+ 192</td>
<td>Other long term assets</td>
<td>+ 79</td>
<td>Capital investment</td>
<td>(470)</td>
</tr>
<tr>
<td>Total</td>
<td>+ 1,237</td>
<td>Total</td>
<td>+ 2,822</td>
<td>Sale of assets</td>
<td>+ 4</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other</td>
<td>+ 12</td>
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<tr>
<td><strong>Operating Expenses</strong></td>
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<td>Liabilities</td>
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<td>Total</td>
<td>(453)</td>
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<tr>
<td>Wages &amp; benefits</td>
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<td>Current liabilities</td>
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<td></td>
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<tr>
<td>Materials &amp; energy</td>
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<td>Deferred taxes</td>
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<td>Financing</td>
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<tr>
<td>Depreciation</td>
<td>+ 149</td>
<td>Long term debt</td>
<td>+ 813</td>
<td>Issue long term debt</td>
<td>+ 322</td>
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<tr>
<td>Other</td>
<td>+ 282</td>
<td>Other</td>
<td>+ 83</td>
<td>Retire long term debt</td>
<td>(93)</td>
</tr>
<tr>
<td>Total</td>
<td>+ 1,174</td>
<td>Total</td>
<td>+ 1,259</td>
<td>Dividends</td>
<td>(2)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other</td>
<td>(7)</td>
</tr>
<tr>
<td><strong>Operating Income</strong></td>
<td>+ 63</td>
<td>Equity</td>
<td></td>
<td>Total</td>
<td>+ 220</td>
</tr>
<tr>
<td>Interest &amp; other</td>
<td>+ 55</td>
<td>Share capital</td>
<td>+ 441</td>
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<td>financial exp</td>
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<td></td>
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<tr>
<td>Income before Income tax</td>
<td>+ 8</td>
<td>Retained earnings</td>
<td>+ 1,122</td>
<td>Net Change in Cash</td>
<td>(50)</td>
</tr>
<tr>
<td>Income tax</td>
<td>+ 9</td>
<td>Total</td>
<td>+ 1,563</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Net Income**          | (1)    |                   |        |            |        |

* Positive figures indicate increase in source of cash negative figures indicate increase in use of cash.

Source: Burlington Northern Santa Fe LLC 10-K Reports.
References

Community of European Railways and Infrastructure Companies (2011), Reforming Railways—Learning from Experience.

European Conference of Ministers of Transport (2004), Regulatory Reform of Railways in Russia.


International Monetary Fund (2014), World Economic Outlook Database.

Russian Federation (2003), Tariff No. 10-01.


World Bank (2015), World Development Indicators Database.
TTX Company—Rail Wagon Pooling

Relevance to China Railway Sector

The example of TTX Company (TTX) illustrates that a rail wagon pooling company can be financially viable, raise capital from the private sector and benefit its railway shareholders through risk sharing and efficient operation and maintenance of wagons. The relevant lessons for China could be:

- A rail wagon pooling company can finance wagons with private sector funds, if it is set up as a private entity with compensatory prices.
- A rail wagon pooling company can lower the cost of owning and using wagons if managed efficiently and neutrally between owners.

Impact Summary

This approach enabled a group of railways to create a company that buys/leases, maintains and manages railway wagons on a pooling basis that benefits its owners.

- TTX has raised more than US$ 3 billion in private debt financing, reducing the capital burden of its investors.
- The TTX pooling arrangement improves wagon utilization, reducing the size of the fleet needed to serve the traffic. This creates an annual savings for the railways estimated at US$ 345 million.

Motivation

TTX is a privately held company that provides North American railways with intermodal, automobile and general use railway wagons. TTX (then called Trailer Train) was formed in 1955 to invest in a new technology—flat wagons that would carry truck trailers. Its purpose is to provide its shareholder railways with an appropriately sized and efficiently managed fleet of wagons, available under neutral wagon distribution rules.

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Experience

TTX is a railway wagon pooling company owned by North American railways: Burlington Northern Santa Fe, Canadian National, Canadian Pacific, CSX, Ferromex, Kansas City Southern, Norfolk Southern, Pan Am Railways and Union Pacific.

TTX fleet includes over 220,000 wagons. Most are flat wagons (intermodal, automotive, general merchandise) with the remainder being box wagons and gondolas. TTX’s fleet makes up approximately 15 percent of the total freight wagons in service in North America. TTX owns the majority of the wagons in its fleet (88 percent in 2013).

TTX rents these wagons to participating railways. It differs from a typical leasing company in that the wagons belong to a pool and not to individual railways. Therefore TTX wagons operate freely on the entire rail network, without the wagon return restrictions that apply to other wagons.

TTX charges the participating railways an hourly charge and a mileage charge for the use of its wagons. For example, as of April 2013, the base rate for TTYX single unit wagons was US$ 0.69 per hour, for TTYX double-unit wagons was US$ 1.37 per hour, and for TTYX five-unit wagons was US$ 2.27 per hour. The prices are established by the TTX board of directors. TTX’s goal is not to maximize profits, however, so the prices are set at the levels necessary for TTX to be financially sustainable and be able to raise financing for fleet expansions when needed.

TTX’s goal is not to maximize profits, it is to maximize efficiency.

TTX maintains its fleet, using a network of repair shops (4), field maintenance operations (52) and authorized independent repair facilities.

TTX provides three main benefits to its participating railways:

- **Capital avoidance.** TTX has invested US$ 11 billion in rail wagon and maintenance facility assets and spends US$ 600
million per year on wagon maintenance, enabling the participating railways to avoid this investment.

- **Efficient wagon utilization.** The pooling approach improves the efficiency of wagon distribution. For example, TTX has 7 percent empty wagon-km, which is 31 percent more efficient than non-TTX owned wagons.\(^4\) By operating more efficiently, fewer wagons are needed to move the traffic, saving investment and maintenance costs. Wagon movement costs are also saved. TTX estimates that this saves the participating railways US$ 345 million per year.

- **Shared Risk:** Since wagons are shared, a surplus of wagons in one region may be used by a railway in another region, sharing the risk of the wagon purchase.

Each railway participant is free to pursue its own fleet acquisition strategy with no obligation to use TTX wagons.

### Industry Structure & Institutional/Regulatory Framework

The railway industry in the United States includes:

- Four large, vertically integrated, private investor owned freight railways;
- Over 500 vertically integrated short line railways, with varying ownership (municipalities, industries, private investors, large railways); and
- One government owned intercity passenger company, Amtrak, which operates on its own infrastructure on the Northeast Corridor and on the infrastructure of the freight railways in other locations.
- More than 40 commuter/heavy rail services operated for transit authorities.

The legal and regulatory framework is defined by three laws:

- The Interstate Commerce Act (1887) created the basic regulatory and legal framework for railways, assigning them common carrier and passenger service obligations, limiting their flexibility to reduce track/service, creating the Interstate Commerce Commission to regulate tariffs, and forbidding discrimination in service/tariffs.
- The Railroad Revitalization and Reform Act (1974) modified the Interstate Commerce Act to introduce some flexibility in rates, allow more track/service reductions.
- The Staggers Act (1980) modified the Interstate Commerce Act and Railroad Revitalization and Reform Act to provide for substantial deregulation of freight tariffs, allow railways to contract with customers, eased restrictions of railways mergers and allowed the railways to

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close and divest railway lines with insufficient traffic.

The Preliminary National Rail Plan, prepared by the Federal Railroad Administration, sets the national government’s priorities for rail: developing high speed passenger rail service, supporting high performance freight service, intermodal connectivity and safety.

The Surface Transportation Board (STB) is the economic regulator of railways. The TTX Pooling Agreement must be approved by the STB. The most recent approval, in 2014, authorized the arrangement for flat wagons for 15 years.

Mechanism

TTX interactions with its owner railways are governed by a pooling agreement. Key aspects of this agreement include:

- TTX is to gather market information from participating railways, raise financing, purchase and maintain wagons, and manage a pool of wagons for the use of participating railways;
- Rates charged for the use of wagons are maintained at the lowest level “required to meet TTX’s ordinary and necessary costs and expenses, including as appropriate, return on investment.” At the end of each year, any funds deemed to be in excess of that requirement are returned to the owners based on their use of TTX equipment during the year.
- Access to wagons is subject to rules that apply equally to each railway participant.
- The wagons may be used for loading to any point in the USA railway network and approved locations in Mexico and Canada.
- Participating railways are free to own as many wagons in their own fleets as they choose.

The charges and rules for distribution of wagons in the pool are contained in a subsidiary Car Contract. Under this contract, each participating railway receives an “entitlement” to a share of the wagons, based on its historic use. If a railway has more wagons on its lines than its entitlement, TTX can require it to send the wagons to another railway that has less than its entitlement.

The participating railways pay TTX time- and distance-based charges for the TTX wagons on their lines. However, when a railway has more wagons that it needs, it informs TTX. TTX will only charge it for five days of use of the wagon after this notification. If the

![Figure 4. TTX Wagon Utilization](source)

Figure 4. TTX Wagon Utilization

wagon is needed on another railway, TTX will direct it to be sent to that railway. If it is not needed, it will be stored and no wagon hire will be charged. The railway participants benefitted substantially from this provision during the recession that began in 2008. As shown in Figure 4, TTX’s wagon utilization rate, which dropped to 70 percent in 2009, is now back at a pre-recession level of 93 percent.

If some railways want to use more than their entitlement and some want to use less, the Car Contract allow a railway to “give” some of its entitlement to another railway. It also contains provision for fair distribution of surplus wagons to railway needing more wagons, in the absence of an entitlement “gift.”

The TTX rules for wagon distribution differ from the general rules administered by the Association of American Railroads (AAR), which apply to all other wagons. The AAR rules allow the wagon owner to designate what should be done with the wagon after it is unloaded on another carrier’s lines. The options range from (i) returning the wagon empty via reverse of the routing by which it came; (ii) allowing the wagon to be reloaded in the direction of its owner railway; to (iii) allowing the wagon to be reloaded for any destination.

If the receiving railway does not have a load that meets the return rules of the owner railway, the wagon will be sent to its owner empty. The receiving railway will pay time-based charges for the wagon belonging to the other railway for as long as it is on the receiving railway’s lines. This creates a strong financial incentive exists to send unneeded wagons “home.”

Since TTX wagons can be loaded for any destination (not just the owner railway) and there is less incentive to move empty wagons off line to avoid charges, TTX wagons operate about a third less empty km than other similar type wagons in North America.

Corporate Governance

TTX is governed by a 10 person Board of Directors. Each of the nine shareholder railways nominates one board member and the tenth member is the President of TTX. The directors have a mix of backgrounds and skills including marketing, finance and operations.

Strong corporate governance and transparency are necessary for raising financing from commercial markets.

The Board has an audit committee and other committee “typical for a closely held corporation.” TTX Company’s accounts are audited by a qualified independent auditor, which reports to the Audit Committee of the Board of Directors. According to TTX’s Senior VP for Law and Administration, “If you want to borrow money, you need good governance and transparency.”

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Financial Impact

TTX’s main source of revenue is wagon hire charges paid by the participating railways. It derives a small share of revenue from non-member wagon repair services. Expenses are mostly related to owning, maintaining and distributing wagons. Cash flow from operations has been more than sufficient to cover debt service. TTX’s aims to keep its fixed charge coverage ratio (operating and other income/interest and amortization of debt repayment) at 1.8 and has mostly managed to do this. (It fell to a low of 1.58 in 2009 during the recession.)

TTX does not normally pay dividends. (It has only paid dividends twice in its history.) If its cash is greater than requirements it benefits its shareholders through rebates or reducing rates.

TTX is financed primarily by unsecured debt and has more than US$ 3 billion of debt on its balance sheet. In the last five years, debt (including financial leases and principal portion of operating leases) has made up about 63 percent of the TTX capital structure. Most of this debt is not secured by a claim on TTX assets. In 2013, only three percent of TTX’s debt was secured by assets. Debt maturities are laddered (spread over time). Equity has come mostly from retained earnings.

Over the last five years, TTX has invested US$ three billion including, rehabilitation of wagons, conversion of wagons from 48’ to 53’ to improve their marketability, and purchase of new wagons.

Other Impacts

TTX has supported the development of intermodal transport of freight in North America by making flat wagons available to the railway industry. Rail intermodal in the USA has grown from 3 million containers/trailers in 1980 to 13.5 containers/trailers in 2014. In 2014, intermodal was the largest revenue producer for the US rail industry (ahead of coal), accounting for 22 percent of rail revenue.7

Stakeholder contributions and Impacts

Shareholders. The railway shareholders in TTX have benefitted from risk sharing, efficient acquisition and fleet management railway wagons.

Customers. Railway customers have benefitted indirectly from the availability of railway wagons for their shipments.

References

This case study is based on interviews with Patrick B. Loftus, TTX Company, Senior Vice President, Law and Administration and with Ronald Sellberg, Assistant Vice President - Engineering & Research, retired.


TTX Company (2014). TTX Pooling Agreement.

PKP Cargo: Successful Restructuring & IPO

Relevance to China Railway Sector

The example of PKP Cargo illustrates the two following concepts:

- Restructuring to improve productivity can increase a railway’s competitiveness and profitability; and
- Selling stock in a profitable railway company can provide the parent holding company with cash that it can use to reduce debt or for investment.

The relevance to China could be in the opportunity to:

- Increase the value of CRC railway companies through efficiency improvement; and
- Realize cash from floating shares in profitable railway companies, which could be used to decrease CRC’s financial leverage or provide funds for investment.

Impact Summary

The restructuring and IPO of PKP Cargo enabled Polish Railways (PKP SA) to realize the inherent value of the railway’s cargo unit by floating shares of its subsidiary PKP Cargo on the Warsaw stock exchange. Sale of 67 percent of shares yielded US$ 620 million and allowed PKP SA to cut its debt by nearly half.

Motivation

When new, commercially oriented management was appointed to PKP SA, they initiated a restructuring program intended to turn around the financial performance of PKP SA and address its high indebtedness.

Figure 1. EU Rail Freight Market

Source: PKP Cargo

![Figure 1. EU Rail Freight Market](chart.png)
PKP Cargo operates in a highly competitive European freight market, dominated by DB Shenker. PKP Cargo developed and implemented its restructuring plan, discussed in this case to remain competitive in this challenging environment.

**Experience**

**Background**

After the dissolution of the USSR in 1985 and the ensuing collapse of the planned economy in Eastern Europe, the Polish railway industry was devastated. Traffic volumes fell as traditional rail customers vanished. Government deregulated road transport, which introduced fierce competition for the remaining freight market. By the end of 1999, subsidies to sustain PKP were reaching 2.0 percent of GDP\(^1\) and PKP’s freight modal share had fallen to 35 percent.

Seeing that the railway industry faced severe financial, market, operational, and asset challenges, the Polish government responded with industry reforms consistent with the European Union (EU) acquis communautaire for railways. Poland’s new reforms followed the EU’s overall competitiveness policy, designed to break down barriers of national railways and requiring a gradual opening of rail infrastructure to competition.

As part of these reforms PKP separated accounting for freight, passenger, and infrastructure services in 1995. This provided transparency by lines of business within the larger parent company, accomplishing three major goals:

- Prepared PKP for joint stock company formation by creating separate lines of business;
- Initiated private sector participation in the railway supply industry; and
- Opened the railway infrastructure to third-party operators.

These initial organizational changes set the stage for further reforms. In 2000, the Polish government passed the Railway Restructuring and Privatization Law as part of transposing the EU Directive 91/440/EEC. The law established PKP SA as a fully state-owned joint stock holding company starting in 2001. In October of 2001, 24 subsidiaries were established, including PKP Cargo in charge of all freight rail operations. However, the structural changes made were not sufficient to put the company on a sound market and financial footing. By 2011, PKP was incurring operating losses and was carrying over US$ 1.3 billion in debt.

**New Management**

The Polish government appointed a new CEO and board for the PKP railway in 2012. The new leadership came not from the railroad industry, but out of the banking and business sectors. This new management, strengthened corporate governance and incentives, streamlined the organization structure, and introduced cost reduction measures.

In October 2013, PKP Cargo floated 50 percent of its stock on the Warsaw Stock Exchange. With its initial public offering (IPO), the company became the first stock-listed rail freight operator in Europe. The parent company PKP SA was able to use the proceeds of the IPO and a subsequent stock

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PKP Cargo is now positioned for growth, while paying solid returns to investors. In the 2014 fiscal year, PKP maintained a relatively stable domestic market share of 57 percent of freight turnover and nearly 48 percent of freight volume. For the 2014 fiscal year, earnings before interest, taxes, depreciation, and amortization (EBITDA) were PLN 710 million, with operating cash flows of PLN 523 million.

At the end of FY 2014, the PKP Management Board decided paid dividends of PLN 2.46 per share. The total amount of PLN 110.2 million consisted in PLN 53.9 million from the profit generated in 2014 and PLN 56.3 million from retained profits generated in the previous years.

PKP Cargo is now the 2nd largest rail freight company in Europe, with over 50% market share in Poland. It has controlled costs and maintained profitability in an extremely competitive freight market. This success is due to new, more commercial management.

**Industry Structure & Institutional/Regulatory Framework**

PKP is a railway operator in the European Union and is part of a larger European railway market that promotes free competition for freight and passenger transport. While every country has its own infrastructure, this infrastructure is opened to all EU licensed railway operators. In Poland, PKP competes with publically and privately owned rail companies from Poland and other countries.

PKP SA, the fully state-owned joint stock railway holding company in Poland has 24 subsidiaries, including

- PKP Cargo, which operates freight services.
- PKP InterCity Passenger Services, which operates long distance and international passenger transport.
- PLK, which manages railway infrastructure.
- PKP Energetyka, which operates energy and traction services.
- PKP Informatyka, which is in charge of telecommunications.

In Poland, the Office of Rail Transport (Urzad Transportu Kolejowego, UTK) was established in 2000 to regulate the railway market. It is tasked with formalizing and standardizing passenger rights, railway market regulation, railway transport safety, and technical coherence of the railway system.

In addition to Poland’s UTK, PKP Group is regulated by international laws, EU laws, Polish law, and the local laws of each of the countries where the Group conducts its operations. The principal EU documents that regulate the railway transport market are:

- Directive 91/440/EEC on the development of the Community’s railways;
- Directive 95/18/EC on the licensing of railway undertakings; and
- Directive 95/19/EC on the allocation of railway infrastructure capacity and the charging of access fees.

However, the specific effects of the EU legislation in Poland and other EU Member States depends largely on the proper implementation of railway directives into national legislation.
Mechanism

PKP Cargo Restructuring & Market Development
PKP Cargo went through successive periods of restructuring to become profitable, competitive and financially viable in an increasingly competitive rail freight market in Europe. Early efforts primarily addressed staffing, while restructuring since 2012 has streamlined the organizational management, revised incentives and improved productivity/reduced cost of rolling stock as well as staff.

During this period, PKP Cargo had needed to adjust to the increasingly competitive freight market, in which rail traffic has not grown and it has lost market share.

Staff Reduction. Over the last 15 years, PKP Cargo has reduced its staff by 57 percent (from 51,400 in 2001 to 22,000 in 2014) in response to reductions in traffic demand and loss of market share. This included three major voluntary leave programs:

- 2009 — reduction of 8883 FTEs, with the assistance of the World Bank
- 2011—reduction of 2068 FTEs
- 2014—reduction of 3000 FTE’s

In addition to voluntary leave programs, employees were also reallocated to other PKP units, retired and were not replaced, and departed through normal attrition. Currently employee costs make up about 37 percent of PKP Cargo’s operating costs.
**Organizational Changes.** PKP’s new management reorganized the company into clear market-oriented business units (rail freight, shipping, and intermodal transport) and service delivery units (freight terminals, rolling stock, sidings management). It flattened the management structure by reducing the number of deputy directors in mid-level management.

**Improved Rolling Stock Efficiency.** PKP Cargo took a number of steps to reduce the cost of rolling stock. These included:

- Reorganizing the repair and overhaul units, shutting 32 of 42 units;
- Reducing use of diesel locomotives and modernizing electric locomotives;
- Increasing train size so more wagons are hauled by each locomotive.

This has resulted in cost savings in fuel and repairs/overhauls and a more modern fleet. For example, the electric locomotive modernization program has yielded a 13 percent drop in energy consumption.

**Other Cost Saving Initiatives.** PKP’s new management took a number of other significant actions to reduce costs and improve service. These ranged from introducing IT solutions and computerizing transport administrative procedures to improving purchasing processes and renegotiating key supply contracts.

**International Expansion.** PKP Cargo is licenses to operate in nine EU member states. To develop its market reach in Central and Southern Europe, PKP bought an 80 percent share of Advanced World Transport (AWT), the largest rail freight operator in the Czech Republic in 2014 for €103 million.

In March 2015, PKP Cargo signed a cooperation agreement with HZ Cargo, the Croatian cargo operator. This gives PKP access to the ports of Rijeka and Ploce and will enable more effective rolling stock utilization.

**IPO**

In September 2012 PKP decided to float 50 percent of the shares of PKP Cargo on the Warsaw stock exchange. During the next year, it held discussions with potential investors, prepared a prospectus, and negotiated with labor unions to obtain their agreement to the transaction.

The initial public offering price was set at PLN 68, with the transaction value of PLN 1.43 billion (US$ 440 million). More than half the offering was sold to Polish institutional investors. The European Bank for Reconstruction and Development took an 11 percent stake and other international institutional investors bought 20 percent.
On October 30, 2013 the shares were floated on the Warsaw stock exchange. During that day the market price of the shares increased 19 percent compared to the issue price. The price has since fluctuated between 70 and 100 PLN/share.

In June 2014, PKP S.A. sold another 17 percent of shares of PKP Cargo. PKP Cargo’s investors include top Polish and global financial institutions. Together the two sales yielded US$ 620 million.

Corporate Governance
PKP Cargo is a publicly traded joint stock company. At the highest level, it is governed by a General Meeting of Shareholders, which appoints the Supervisory Board.

The key corporate management body is the Board of Directors, who guide and oversee the company. The PKP Cargo board has ten members: three are affiliated with PKP, three are representatives of labor and four are independent directors. The Supervisory Board has two standing committees: audit and nominations. To ensure proper oversight of management, the audit and nominations committees are headed by independent board members.

Day to day management of PKP Cargo is led by a five person management board, appointed by the supervisory boards.

The financial statements PKP Cargo are audited by independent financial auditors, who report to the audit committee, not to the company management. The financial statements and information on the company operations and governance are disclosed on the company website.

Financial Impact
PKP Cargo
The financial impact of PKP Cargo’s restructuring and aggressive cost reduction program is that it has been able to remain profitable during a period when traffic reduced. During this period, it has continued to invest PLN 400 – 600 million per year in its rolling stock and facilities.

PKP SA

![Figure 5. IPO Shares](source: PKP Cargo)

![Figure 5. PKP Cargo Operating Results](source: PKP Cargo)
The financial impact on PKP SA is that it was able to sell 67 percent of the shares of its subsidiary, PKP Cargo, for US$ 620 million. This has allowed PKP SA to cut its debt (US$ 1.34 billion at the end of 2011), nearly in half.

**Stakeholder contributions and Other Impacts**

**Customers.** PKP Cargo customers have benefitted from improvement in PKP’s service and from strong rail market competition within Poland and the European Union.

**Employees.** PKP Cargo employment has declined from 51,400 in 2001 to 22,000 in 2014. This was accomplished through retirement, attrition and a variety of voluntary programs.

**Local communities:** Communities benefit from PKP Cargo employment and provision of transport to local communities and experience negative impacts such as noise, blockage of level crossings, and risk of accidents. They have seen reductions in employment and benefitted from efforts to improve safety.

**Investors:** After the IPO, investors have the opportunity to invest in PKP Cargo.
### Table 1. Change in Annual Financial Results for PKP Cargo between 2010 and 2014 (PLN million)

<table>
<thead>
<tr>
<th>Income Statement</th>
<th>Change</th>
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<td></td>
<td><strong>Assets</strong></td>
<td></td>
<td><strong>Operations</strong></td>
<td></td>
</tr>
<tr>
<td>Rail services</td>
<td>(368.8)</td>
<td>Current Assets</td>
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<td></td>
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<tr>
<td>Goods &amp; materials</td>
<td>(146.5)</td>
<td>Property, plant &amp; equipment (net)</td>
<td>+886.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>(6.2)</td>
<td>Other non-current assets</td>
<td>(76.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>(521.5)</td>
<td>Total</td>
<td>+1,143.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating Expenses</strong></td>
<td></td>
<td><strong>Liabilities</strong></td>
<td></td>
<td><strong>Investing</strong></td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td>+168.4</td>
<td>Short-term liabilities</td>
<td>+175.0</td>
<td>Acquisition of PPE and intangible assets</td>
<td>(204.8)</td>
</tr>
<tr>
<td>Raw materials &amp; supplies</td>
<td>+125.6</td>
<td>Deferred taxes</td>
<td>(1.4)</td>
<td>Sale of PPE and intangible assets</td>
<td>+11.0</td>
</tr>
<tr>
<td>External services</td>
<td>+435.7</td>
<td>Long-term</td>
<td>+15.8</td>
<td>Other</td>
<td>+135.8</td>
</tr>
<tr>
<td>Employee benefits</td>
<td>(345.0)</td>
<td>Other</td>
<td>XXX</td>
<td>Total</td>
<td>(58.0)</td>
</tr>
<tr>
<td>Other</td>
<td>+186.0</td>
<td>Total</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>+570.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating Income</strong></td>
<td></td>
<td><strong>Equity</strong></td>
<td></td>
<td><strong>Financing</strong></td>
<td></td>
</tr>
<tr>
<td>Interest &amp; other</td>
<td></td>
<td>Share capital &amp; premium</td>
<td>(79.0)</td>
<td>Liabilities and interest under lease agreement</td>
<td>+25.9</td>
</tr>
<tr>
<td>financial</td>
<td>(6.3)</td>
<td></td>
<td></td>
<td>Credit facilities and loans</td>
<td>+35.9</td>
</tr>
<tr>
<td>Income before</td>
<td></td>
<td>Retained earnings</td>
<td>+969.0</td>
<td>Dividends</td>
<td>(137.5)</td>
</tr>
<tr>
<td>income tax</td>
<td>+43.0</td>
<td>Non-controlling</td>
<td></td>
<td>Other</td>
<td>+16.6</td>
</tr>
<tr>
<td>Income tax</td>
<td>(12.5)</td>
<td>interest</td>
<td>+63.5</td>
<td>Total</td>
<td>(59.1)</td>
</tr>
<tr>
<td>Net Income</td>
<td>+29.7</td>
<td>Total</td>
<td>953.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References


IPO/Refinancing of Jinxi Axle

Relevance to China Railway Sector

The example of Jinxi Axle illustrates the three following concepts:

- **Capital market operations can be an efficient way to adopt market mechanisms.**
- **Revitalize assets through financing and investment activities.** Through refinancing, enterprises can augment their working capital. Thus, the enterprises can increase both the quantity and scope of investment, optimize their capital structure and disperse business risks.
- **Promote development of the business group by listing good-quality assets.** Listing good-quality assets on the stock market can bring in substantial cash for the overall business development of the company. This in turn supports the improvement of those core assets, thereby facilitating a positive development of the company as a whole.

The relevance to CRC could be to:

- **Introduce the market mechanism through full use of capital market operations.** Through the stock market, resources can be efficiently allocated to enterprises that need capital urgently for development.

**Impact Summary**

Through IPO and refinancing, Jinxi Axle raised funds needed for its investment projects to improve its main business operations and technological capabilities. In 2004, Jinxi Axle raised RMB 245 million yuan (US$41 million) through an IPO to invest in four projects, including technical upgrading of the train axle production line. In 2009, it raised another RMB 845 million yuan (US$ 141 million) through a private placement to update the technology of its railway axle production lines. In 2013, it raised RMB 129 million yuan (US$ 215 million) through private placement and invested the capital in the Magang-Jinxi axle project and a rail transit and high-end equipment manufacturing base construction project.

The IPO gave Jinxi Axle an important boost in upgrading its products, optimizing its industrial layout, and transforming its development mode. Meanwhile, its brand awareness and social recognition have been promoted. In 2015, its stock price has
increased to 30 yuan per share, and its total market value is more than RMB 21 billion.

Figure 1. Jinxi Axle Liability to Asset Ratio

<table>
<thead>
<tr>
<th>Year</th>
<th>Liability to Asset Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>0.30</td>
</tr>
<tr>
<td>2010</td>
<td>0.35</td>
</tr>
<tr>
<td>2011</td>
<td>0.30</td>
</tr>
<tr>
<td>2012</td>
<td>0.25</td>
</tr>
<tr>
<td>2013</td>
<td>0.20</td>
</tr>
<tr>
<td>2014</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Source: Jinxi Axle Annual Reports 2010-2014.

Refinancing also improved Jinxi Axle’s financial position and improved its ability to withstand risks. From 2009 to 2014, its debt-to-assets ratio has decreased substantially (Figure 1).

Refinancing helped Jinxi Axle to improve its core competences and enhance confidence of its holding company and external investors. Thus the company obtained more attention, trust and support while presenting a good model for going public to other subsidiaries of the group.

Motivation

Several factors contributed to Jinxi Axle’s decision for IPO and refinancing.

- Jinxi Axle needed to reform its shareholding system and establish a modern enterprise system.
- Jinxi Axle needed capital to upgrade its technology and to take strategic actions such as vertical and horizontal integrations, diversification and restructuring. This required a huge amount of capital.
- In 2009, the global financial crisis decreased market demand at home and abroad. Capital markets dropped and investor confidence was badly affected, which put Jinxi Axle under increasing pressure.
- Jinxi Axle had a high liability to asset ratio, which put it at financial risk.

Experience

Jinxi Axle produces and sells railway axles, light rail transit railway vehicles and vehicle components. The company ranks at the top of the railway axle industry for its technological innovation, management, equipment manufacturing, quality, and capacity. It has the largest company scale, the highest domestic market share and the strongest technical capacity in the Chinese railway axle industry. Jinxi Axle has Asia’s largest production capacity of railway axles. It now has total assets of RMB 2.5 billion yuan (US$ 400 million) and over 1900 employees, including more than 220 senior technical professionals.

Jinxi Axle Co. Ltd (Jinxi Axle), formerly known as Jinxi Machine Industrial Group Company Ltd., was founded on September 1, 1948. On December 27, 2000, Jinxi Axle was registered and established as a new entity, approved by the former State Economic and Trade Commission. The sponsor shareholders were: Jinxi Machine Industries Group, a subsidiary of China North Industries Group Corporation; International Emer (US); China ORDINS Group; Shanxi Jiangyang Chemical; and Beijing Jianye Science and Technology Development. In 2001, China Huarong Asset Management Corporation and China Great
Wall Asset Management Corporation took stakes in Jinxi Axle. China North Industries Group Corporation became the controlling shareholder; Jinxi Axle is, in effect, its subsidiary.

In May 2004, Jinxi Axle (600495) was listed on the Shanghai stock exchange. It issued 40 million new shares at an issue price of 6.39 RMB per share, raising RMB 245 million (US$ 41 million). Jinxi Axle is the 11th listed company in Taiyuan city.

The ownership structure of Jinxi Axle before the initial public offering (IPO) is shown in Figure 2. Jinji Group, Jiangyang and ORDINS are state owned entities. After the public stock offering, Jinxi Axle has public shares, changing its equity structure (Figure 3).

With the change in ownership structure, Jinxi Axle repositioned its business philosophy. The proportion of insiders in decision-making and management of internal operations was reduced and more external professionals were involved.

In 2009, Jinxi Axle issued 65 million shares that were sold through private equity placement. This increased total equity from 102.91 million shares to 167.91 million shares, as shown in Table 1. Jinxi Axle raised capital of RMB 1.29 billion yuan (US$ 141 million) through this private placement. The capital was mainly used to upgrade the railway axle production lines.

On June 18, 2010, Jinxi Axle added 134.32 million shares through converting its capital reserve into common shares.

On July 25, 2011, Jinxi Axle purchased 50 million shares of North Industries Group Finance Company with a total investment of RMB 75 million (US$ 12.5 million).

<table>
<thead>
<tr>
<th>Transaction Type</th>
<th>Date</th>
<th>Shares Issued (in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private placement</td>
<td>2009/1/16</td>
<td>65</td>
</tr>
<tr>
<td>Accumulation fund to common shares</td>
<td>2010/6/18</td>
<td>134.32</td>
</tr>
<tr>
<td>Private placement</td>
<td>2013/8/7</td>
<td>117.27</td>
</tr>
<tr>
<td>Accumulation fund to common shares</td>
<td>2014/8/5</td>
<td>251.70</td>
</tr>
</tbody>
</table>

Source: Jinxi Axle Annual Reports.

In 2013, Jinxi Axle raised RMB 215 million through private equity placement, issuing 117.27 million shares. This increased the number of shares outstanding from 302.23 million to 419.51 million. It used the proceeds to invest in Magang-Jinxi axle project, a rail transit and high-end equipment manufacturing base construction.
project and increase working capital.

On August 5th 2014, Jinxi Axle added another 251.7 million shares through converting its capital reserve into common shares, which increased its total number of shares to 671.21 million.

On May 5, 2014, Jinxi Axle was a key investor in China CNR’s H share public offerings in Hong Kong, purchasing 449.78 million shares with HK $5.17 per share. On December 16 2014, Jinxi Axle sold all China CNR’ shares it had to Hua’an Fund Management with a price of HK $7.95 per share.

Industry Structure & Institutional/Regulatory Framework

Industrial Structure

The rail transportation equipment manufacturing industry in China has a complete value chain (Figure 4).

In the upstream of the value chain, professional research and development (R&D) companies are developing rapidly. These companies are taking over part of the production and R&D activities from vehicle manufacturers. The R&D companies design new vehicle models and key components at the same time as, or even earlier, than the vehicle manufacturers. Therefore, those vehicle manufacturers are able to have competitive procurements of specialized designs and vehicle parts on a global basis, and then have low-cost assembly. Such specialization and cooperation within the industry continues to deepen.

Since 2007, the railway equipment manufacturing industry has experienced resource integration. CSR and CNR not only monopolize China’s railway locomotive manufacturing with a market share of 95%, but also undertake a vast majority of production and R&D of the core parts.

In the market for other parts (e.g., turbocharger, governor, buffer, tighten fasteners, communication signal system and other vehicle accessories), however, the market demonstrates a competitive structure. There are hundreds of companies in those market segments with complete production and R&D capability.

Jinxi Axle is among the first pilot groups to produce axles for high-speed railway vehicles. It has about 35 percent market share in railway axles, maintaining its leading position in the industry.

With the reform of the railway management system and operation mechanism, a series of changes occurred in the market environment, product structure and bidding for supplies. The merger of CSR and CNR in 2014 makes the railway market competition environment more complex. Profit margin
and the supply-demand relationship of some products are affected, creating uncertainties for Jinxi Axle’s development.

**Relevant Policies and Regulations**

In "Measures for the administration of IPO and Listing of stocks" (SFC [2006] no. 32), Article 3 states that the initial public offering and listing should conform to the "securities law" and the “corporation law.” Article 15 states that the issuer’s assets should be complete. Production enterprises should have related production system, auxiliary production system and the supporting facilities, land, plant, machinery and equipment, as well as trademarks and patents.

In "Interim Measures for the identification and administration of the state-owned shareholders of Listed Companies" (state-owned assets property rights [2007] no. 108), Article 4 states that when state-owned or state-controlled companies apply for issuing shares, they should provide approval documents of the State-Owned Assets Supervision and Administration Institutions to the Securities Supervision and Administration Institutions.

In "Interim Measures for the identification and administration of the state-owned shareholders of Listed Companies" (state-owned assets property rights [2007] no. 108) Article 38 states that capital should be used in a clear direction and recommended to be invested in main businesses. Article 39 states that quantity of funds and investment supported by the refinancing should match the existing production and operation scale, financial status, technical level and management capability.

“Notice on the issuance of listed companies” (CSRC [2001] no. 43) requires that when listed companies applying for issuing additional stocks, they should satisfy the following requirements: average ROE is no less than 6 percent in recent three fiscal years; total number of additional stock, in principle, is no more than 30 percent of the total shares; The time interval of issuing additional stocks between this time and the previous one, is no less than one fiscal year.

In “The Measures For The Administration Of Securities Issuance Of Listed Companies” (CSRC [2006] no. 30), Article 3 state that for listed companies issuing securities (stocks, bonds and other approved securities), the issuance can be either public or private placement. Article 37 states that private placement of stocks should meet the following requirements: investors in the private placement need to conform provisions of the resolution of shareholders' general meetings; and investors in the private placement are no more than ten. If investors are overseas strategic investors, they should have prior approval from the relevant departments of the state council. Article 45 states that when the listed companies apply for private placement of securities should be recommended by sponsors and declared to CSRC.

**Mechanism**

**IPO and Refinancing**

Before the IPO, the main sponsor for the establishment of Jinxi Axle, Jinji Group, carried out an overall restructuring in 2000,
which laid the institutional foundation for the IPO of Jinxi Axle. In 2001, China Huarong Asset Management Corporation, and China Great Wall Asset Management Corporation took stakes in Jinxi Group, providing consultations for risk management, which facilitated the IPO of Jinxi Axle in terms of shareholder preparation.

In May 2004, equipped with high-quality assets of Jinxi Group, Jinxi Axle was listed on the Shanghai Stock Exchange, issuing 40 million new shares at 6.39 RMB per share. This raised RMB 245 million yuan (US$ 41 million).

After the IPO, Jinxi Axle adjusted its capital in two ways: private placement and converting accumulation fund to common shares.

- In 2009 and 2013, Jinxi Axle made two private equity placements and raised RMB 1.314 billion (US$ 386 million). The two private equity placements were made to ten targeted companies including Jinxi Industrial Group Co. Ltd; Inner Mongolia North Equipment Co. Ltd; Gong yin Ruixin Fund Management Co. Ltd; and Huatai securities co., Ltd.
- In 2010 and 2014, Jinxi Axle added 386.02 million shares through twice converting the accumulation fund to common shares, increasing its liquidity.

**Introducing Market-Oriented Mechanisms through capital Market Operations**

The market has a basic role of resource-allocation. Stock market, as a form of market mechanism, has a high level of openness and liquidity. The stock market can be leveraged to optimize the allocation of capital resources.

**Diversification of Investors.** After the IPOs and private placement transactions, Jinxi Axle has more shareholders (Figure 3). These new shareholders provided constructive suggestions for corporate governance. The participation of these investment funds and institutional investors strengthened the power of non-controlling shareholders. Meanwhile, the controlling stockholder now has to fully consider the interests of other shareholders while structuring the company, especially those institutional investors, thus improving the effectiveness of corporate governance. With the involvement of external professionals, Jinxi Axle’s management structure became more reasonable, decisions more accurate, and control system more effective.

**Marketization of Returns.** The stock price fluctuates, and the earnings and profits change along with market fluctuations. In 2015, Jinxi Axle’s stock price reached RMB 30 yuan per share, and its total market value is more than RMB 21 billion. This is a five-fold
increase of the initial share price in 2004 (Figure 5).

**Financing Asset Revitalization**

The capital raised through the IPO and refinancing has been mainly invested in operations (Table 2).

In 2009, Jinxi Axle raised RMB 845 million yuan (US$141 million) through private placements, which was mainly used to upgrade railway axle production lines. In 2013, Jinxi Axle raised around RMB 1.29 billion yuan through private placements, out of which RMB 318.4 million yuan (US$ 5.3 million) was used for the Magang-Jinxi axle project; RMB 141.89 million yuan (around US$ 24 million) was used for a rail transit and high-end equipment manufacturing base construction project; and there was another RMB 100 million yuan (around US$ 16 million) used for working capital.

To promote its development, Jinxi Axle made investments in its main business activities to enhance its competence. In addition, the capital Jinxi Axle raised through private placements was also reinvested in equity holdings, government securities and other financial products to revitalize its assets.

On July 25, 2011, Jinxi Axle bought 50 million shares of North Industries Group Finance Company Ltd’s stock, with a total investment of RMB 75 million (US$ 12.5 million). On May 5, 2014, Jinxi Axle purchased 449.78 million H shares of China CNR’ stock at HK $5.17 per share and sold them at HK $7.95 per share in December.

Through financing and investment activities, Jinxi Axle’s capital was revitalized and the value was increased steadily (Figure 6).

---

**Table 2: Capital Usage of Jinxi Axle**

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital usage (already used)</th>
<th>Capital usage (not used)</th>
</tr>
</thead>
</table>
| 2009 | • Projects in its main businesses  
      • Acquisition of The northern forging 100% stake - US$153 million  
      • Acquisition of Jinxi vehicle 47.76% stake - US$ 7 million | • Working capital - US$ 13.82 million  
      • Government securities repurchase - US$ 12.8 million  
      • Reserve account - the remaining US$ 6 million |
| 2013 | • Projects in its main businesses  
      • Working capital - US$ 16 million. | • Working capital - US$ 68 million  
      • Financial products purchase - US$ 83 million  
      • Reserve account by US$ 24.7 million |

*Source: Jinxi Axle Annual Reports.*
Going public with good-quality assets

Among so many subsidiaries of China North Industries Group Corporation, Jinxi Axle was not the most qualified to go public. However, it recognized the great development opportunity of China’s high-speed rail development and convinced investors that Jinxi Axle, which manufactured axles for high speed rail vehicles, had bright prospects. Finally, approved by the China North Industries Group Corporation and China Securities Regulatory Commission, Jinxi Axle was listed successfully.

Risk management

Jinxi Axle has taken several measures to mitigate market risk. It extended its existing market into the market for light rail and shaft axles by offering high quality, low cost products. It exploit emerging markets with innovative products. It actively developed oil drilling tools and precisely forged products, expanding to oil and other industries to achieve product diversification.

Furthermore, it has been active in exploring foreign markets, reducing risk by market diversification (Figure 7).

Jinxi Axle keeps a low long-term debt ratio to mitigate financial risk. Jinxi Axle’s long-term debt ratio was 0.15, 0.20, and 0.16 for 2009, 2010 and 2011 respectively. The low ratio indicates its strong capacity to repay long-term debts, and low risk for its creditors.

For technical risk, several measures were taken. First, Jinxi Axle increased investments in technology and R&D (Figure 8). Second, it formed a first-class R&D team, and carried out various technical cooperation activities with scientific research institutions and other agencies. Finally, it reduced the company’s risk of losing technical information through instituting confidentiality agreements.

Governance & Incentive Structure

Jinxi Axle’s board of directors has 11 persons, who have fiduciary responsibilities to guide and monitor the company. Five of them are independent directors. The top management team has 12 people mainly in charge of general issues and technical, manufacturing, marketing, financial and corporate culture management.
Several measures were taken by Jinxi Axle to mitigate the risk of interference by the major shareholder. Five independent directors were elected to strengthen external supervision and play a positive role in decision-making. In addition, Jinxi Group, as the biggest shareholder with 58.19% shares, pledges not to interfere with daily operations.

Jinxi Axle set up a reasonable incentive system that links the personal compensation of its managers and staff to the company’s profits and employee’s contribution to the company. Personal responsibility, individual performance and the company's performance are the three key factors for assessing employee compensation and incentives.

At the general meetings of shareholders, Jinxi Axle takes various means for shareholders to fully understand the company and get involved in decision-making, such as holding live sessions and an online voting system. The company and the controlling shareholder are strictly independent from each other in terms of personnel, assets, finance, organization and business operations.

Financial Impact

Jinxi Axle has seen relatively steady increases in its operating income and profits between 2009 and 2014 (Figure 9). In 2014, Jinxi Axle’s total assets reached RMB 400 million (US$ 67 million), with an operating revenue of over RMB 2.5 billion (US$ 400 million). The profits attributable to shareholders also increased steadily (Table 3). In 2014, shareholder’s net profits reached RMB 140 million (US$ 23 million), with an annual growth of 22.7 percent. The dividends and dividend payout also keep growing (Table 4).

Jinxi Axle’s asset and equity also steadily increased between 2009 and 2014, optimizing its capital structure (Figure 10).

Other Impacts

Improvements in ownership and financial structures have other extended impacts. Jinxi Axle has revitalized its assets, generated more profits, and staff salary and welfare have also been improved.

<table>
<thead>
<tr>
<th>Year</th>
<th>Dividend Per 10 Shares (RMB)</th>
<th>Shares per 10 Shares transformed from accumulation fund</th>
<th>Dividends Paid (RMB, millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>0.65</td>
<td>8</td>
<td>43.63</td>
</tr>
<tr>
<td>2013</td>
<td>1.00</td>
<td>6</td>
<td>41.95</td>
</tr>
<tr>
<td>2012</td>
<td>0.80</td>
<td>0</td>
<td>24.18</td>
</tr>
<tr>
<td>2011</td>
<td>0.35</td>
<td>0</td>
<td>10.58</td>
</tr>
<tr>
<td>2010</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>0</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Jinxi Axle Annual Reports.
### Table 3: Changes in Jinxi Axle Annual Financial Results (RMB Millions)

<table>
<thead>
<tr>
<th></th>
<th>RMB millions</th>
<th>2008</th>
<th>2009</th>
<th>Change</th>
<th>2012</th>
<th>2013</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Balance Sheet</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
<td>726.22</td>
<td>1543.66</td>
<td>+113%</td>
<td>1464.21</td>
<td>2654.63</td>
<td>+81%</td>
</tr>
<tr>
<td>Other long term assets</td>
<td></td>
<td>390.22</td>
<td>468.00</td>
<td>+20%</td>
<td>1047.05</td>
<td>1259.12</td>
<td>+20%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1116.44</td>
<td>2011.66</td>
<td>+80%</td>
<td>2511.26</td>
<td>3913.75</td>
<td>+56%</td>
</tr>
<tr>
<td>Current liabilities</td>
<td></td>
<td>515.73</td>
<td>592.46</td>
<td>+15%</td>
<td>724.87</td>
<td>747.27</td>
<td>+3%</td>
</tr>
<tr>
<td>Long term debt</td>
<td></td>
<td>0.00</td>
<td>70.00</td>
<td>+</td>
<td>101.60</td>
<td>88.12</td>
<td>-13%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>515.73</td>
<td>662.46</td>
<td>+28%</td>
<td>826.47</td>
<td>835.39</td>
<td>+1%</td>
</tr>
<tr>
<td>Share capital</td>
<td></td>
<td>102.91</td>
<td>167.91</td>
<td>+63%</td>
<td>302.24</td>
<td>419.51</td>
<td>+39%</td>
</tr>
<tr>
<td>Retained earnings</td>
<td></td>
<td>175.90</td>
<td>173.56</td>
<td>-1%</td>
<td>415.96</td>
<td>493.64</td>
<td>+19%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>600.72</td>
<td>1349.20</td>
<td>+124%</td>
<td>1684.79</td>
<td>3078.36</td>
<td>+83%</td>
</tr>
<tr>
<td><strong>Income Statement</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Revenue</td>
<td></td>
<td>1573.01</td>
<td>1509.73</td>
<td>-4%</td>
<td>2735.29</td>
<td>2830.02</td>
<td>+3%</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td></td>
<td>1339.65</td>
<td>1320.00</td>
<td>-1%</td>
<td>2411.35</td>
<td>2521.15</td>
<td>+5%</td>
</tr>
<tr>
<td>Business tax and additional</td>
<td></td>
<td>3.62</td>
<td>5.94</td>
<td>+64%</td>
<td>7.67</td>
<td>6.48</td>
<td>-16%</td>
</tr>
<tr>
<td>Sales fee</td>
<td></td>
<td>34.17</td>
<td>27.19</td>
<td>-20%</td>
<td>36.03</td>
<td>42.76</td>
<td>+19%</td>
</tr>
<tr>
<td>Management fee</td>
<td></td>
<td>84.49</td>
<td>119.23</td>
<td>+41%</td>
<td>148.80</td>
<td>194.75</td>
<td>+31%</td>
</tr>
<tr>
<td>Finance fee</td>
<td></td>
<td>16.73</td>
<td>4.81</td>
<td>-71%</td>
<td>4.75</td>
<td>3.70</td>
<td>-22%</td>
</tr>
<tr>
<td>other</td>
<td></td>
<td>1.81</td>
<td>1.01</td>
<td>-44%</td>
<td>3.13</td>
<td>4.62</td>
<td>+48%</td>
</tr>
<tr>
<td><strong>Cash Flow</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations</td>
<td></td>
<td>114.30</td>
<td>125.83</td>
<td>+10%</td>
<td>-130.75</td>
<td>169.86</td>
<td>+230%</td>
</tr>
<tr>
<td>Investing</td>
<td></td>
<td>-61.58</td>
<td>-248.07</td>
<td>-303%</td>
<td>-199.19</td>
<td>-918.99</td>
<td>-361%</td>
</tr>
<tr>
<td>Financing</td>
<td></td>
<td>-8.05</td>
<td>687.48</td>
<td>+8645%</td>
<td>151.25</td>
<td>1166.45</td>
<td>+671%</td>
</tr>
</tbody>
</table>
Jinxi Axle has made an important step in upgrading its products, optimizing its industrial layout, and transforming its development mode. Meanwhile, together with the operation scale growing, Jinxi Axle’s brand awareness and social recognition are promoted.

**Stakeholder contributions and Impacts**

**Government**: As Jinxi Axle is a subsidiary company of a central government owned enterprise, the value of state-owned assets is increased through its proactive capital market operations. With stronger competitiveness, Jinxi Axle is effectively responding to the national strategy of "One Belt One Road." Besides, Jinxi Axle, which was successfully listed, demonstrates itself as a good model for other state-owned enterprises and subsidiaries to go public.

**Industry**: Through IPO and refinancing, Jinxi Axle increased its technical competence, and thus obtained recognition in the industry. The development of Jinxi Axle intensified the current competition and alleviated the degree of monopoly in the axle industry.

**Society**: Jinxi Axle, as the 11th listed company in Taiyuan, is a leading defense industry enterprise in the city. Its development facilitates the prosperity of local equipment manufacturing industry and promotes necessary adjustment and transformation of the industrial structure in Shanxi Province.
References


France: HSR Public-Private Partnership

Relevance to the Chinese Railway Sector

France was the first country in Europe to use Public-private Partnership (PPP) to finance high speed rail (HSR) investment. It has the largest PPP program in Europe, accounting for about 57 percent of the total PPP investment in HSR across all European countries.

The example of the French PPP case illustrates four key concepts:

- The PPP model attracted private sector financing for HSR infrastructure and enabled projects to be delivered more quickly than possible with a traditional financing approach.
- A clear, predictable and legitimate institutional framework/law/regulation facilitated the development of HSR PPPs.
- PPP models that allocate traffic risk differently (partnership vs. concession model) are needed to attract the private sector depending on anticipated traffic and financial performance of the project.
- The PPP mechanism is a way to get the private sector to define the degree to which a proposed investment is self-funding or requires subsidy to be viable.

The approach is relevant for China Railway Corporation (CRC), the government, and regional authorities in China, as a way to attract private sector financing and expertise for construction of HSR and as a transparent mechanism for defining the financial support some lower volume lines may require to be financially viable. The solid legal framework for PPPs in France is also a good reference for enhancing the legal environment for PPP in China.

Impact Summary

Using PPP allowed Réseau Ferré de France (RFF, now SNCF Réseau) to accelerate development of the HSR network in France. Before the use of PPP, the first four HSR projects took about 20 years to be completed. However PPPs enabled RFF to launch three HSR projects within the last three years.

Motivation

The Government of France has decided to expand the French HSR network by additional 2000 kilometers. Entering into PPPs for HSR enabled RFF to accelerate the construction of HSR line beyond what it could be delivered with traditional state funding and RFF resources. PPPs also brought potential benefits in terms of risk sharing with the private sector, lower construction costs and shorter construction periods.

Experience

French National Railway Reform

Prior to 1997, the French National Railway Company (SNCF) was a vertically integrated railway, managing both rail infrastructure and train operations. To transpose the European Union acquis communautaire for railway, which required vertical separation
between rail infrastructure and train operations, SNCF was restructured. In 1997, the ownership of the railway network was transferred to a separate company, Réseau Ferré de France (RFF). RFF focused on track improvement and development, network investment choices and financing. It contracted with SNCF to provide maintenance and operation of the railway infrastructure. National rail infrastructure and infrastructure related debts were put into RFF (€20.5bn).

SNCF continued to provide train services, as well as maintaining and operating the railway infrastructure under contract with RFF. (See Figure 1.)

**Figure 1. French National Railway: 1997-2014, and 2015-current**

**French National Railway (1997-2014)**

<table>
<thead>
<tr>
<th>RFF: Infrastructure owner and manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>法国铁路路网（RFF）：路网的拥有者和管理者</td>
</tr>
</tbody>
</table>

**Infrastructure Maintenance and operations contract**

**SNCF: Train operator and infrastructure maintenance and operation contractor**

| 法国SNCF：列车运营商，基础设施维护和运营的承包商 |

**French National Railway (2015-Current)**

<table>
<thead>
<tr>
<th>SNCF Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNCF 集团</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SNCF Mobilités</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNCF 运输</td>
</tr>
<tr>
<td>• SNCF Voyageurs: 客运</td>
</tr>
</tbody>
</table>
| • Gares & Connexions: 车站管理和发 
| • Keolis: 法国和海外的城市交通 |
| • SNCF Logistics: 货运，物流 |

<table>
<thead>
<tr>
<th>SNCF Réseau</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNCF路网</td>
</tr>
</tbody>
</table>

The infrastructure owner, maintenance, and operations
作为路网的拥有者，负责路网的运营和维护

*Source: SNCF and RFF*
On January 1, 2015, RFF and SNCF were again restructured with the intent to improve the efficiency of France’s railway systems and the quality of service. SNCF and RFF were combined into the SNCF Group. The infrastructure assets were put into SNCF Réseau, which is responsible for its development, operation and maintenance. The units of SNCF that carried out the infrastructure maintenance and operations contract were transferred to SNCF Réseau, enabling the company to carry out these activities directly. SNCF Mobilités is responsible for transport service, including passenger service, station management and development, and freight service.

**New tool to finance more railway investment projects**

In 2004, new legislation created a legal framework for public private partnerships and established a central PPP unit (MAPPP) to carry them out. One year later, MAPPP was set up and had started operating. Since 2006, RFF has been allowed to enter into public-private partnerships. This new investment tool allows a public sector client to draw on the technical and financial capacity of the private sector to finance and deliver major infrastructure projects.

Two main public-private partnership models have been adopted in French HSR: partnership and concession. Both models have the same purpose—to finance, design, build and operate railway infrastructure. The main difference is the allocation of traffic risk between the public and private parties.

Using the partnership and concession models, during 2010-2012, RFF launched four HSR related projects in total as well as building a station within the three years (see Figure 2). In total, the length of these new lines to be built through PPPs is about 671...
km, with the cost of 15 billion euros, of which, central government subsidized only about 2.2 billion.

**Industry Structure & Institutional/Regulatory Framework**

The railway sector in France includes the government owned SNCF Group, described above and numerous other licensed railway operators that provide train services using the infrastructure of SNCF Réseau.

The Railway Activities Regulatory Authority (ARAF), is responsible for ensuring that all railway operators have fair and equal access to the railway infrastructure in France. ARAF was created by the Act on the Organization and Regulation of Railway Transport in 2009, is an independent administrative authority responsible for guaranteeing equal treatment for all organizations involved in the railway system. “It ensures that access to the national railway network is provided under equal conditions for all railway companies, and that the development of competition is not hindered by rules governing the pricing of infrastructures in particular”.

The Public Establishment for Railway Safety (EPSF) ensures compliance with safety rules and consistency in operational safety and technical conditions for all railway companies, on behalf of the Minister for Transport.

The French PPP structure includes three groups of actors: public authorities, railway procuring authorities and the private sector.

**Public Authorities:**

- The Ministry of Economy, Finance and Industry and the Budget Ministry provide high level guidance on railway investment, defining the network’s general directions, making decisions on major works, and participating in the financing of projects and the renovation of the network.
- MAPPP, a central PPP unit, was created in 2004 and has responsibility for preliminary evaluation of PPP projects.
- The regional governments are taking on a growing number of responsibilities in the area of public transport. On 1 January 2002, they became regional transport organization authorities. They make a significant contribution to defining transport policies and financing the development of the network, particularly under State/Region Strategic Plans (CPER).

**The Railway PPP Procuring Authorities:**

- SNCF Réseau (formerly RFF). It decides how the network is run and maintained.
- European Organizations helps to define and ensure compliance with the rules imposed on all national companies.

**Private Sector:**

---

1 France-PPP units and related institutional framework, 2012.
Many private sector companies have been involved in PPP projects. In France, three contractors have won most of the rail PPP projects to date. They are:

- Eiffage
- Vinci
- Bouygues

Key laws for the sector include:

- **The Law No. 97-135**: Reorganized the French railway sector and created RFF.

- **Decree 97-444: 97-445 and 97-446** of 5 May 1997 respectively set out the duties and articles of incorporation of RFF, the initial assets of the public establishment, on charges for the use of the national rail network payable to Réseau Ferré de France – This decree establishes the rules for the calculation and collection of charges for the use of the national rail network.

- **The Legislation of 2004 (PPP law)**: created a central PPP unit (MAPPP), which is in charge of the preliminary evaluation of PPP projects.

- **Law No. 2006-10 of 5 January 2006**: modified the constitutive law for the public sector company RFF. RFF was required to allow the participation of private parties in the construction, maintenance and operation of that infrastructure. However, RFF was the ultimate owner of the infrastructure. SNCF remained in charge of the management of regulation and safety systems and the operational management of rail traffic.

- **6 December 2006 Decree**: defined precisely the role and the obligation of the private and public sectors.

- **The Act of 4 August 2014**: created the new state-owned SNCF group in 2015. Its components are SNCF Mobilités, responsible for all SNCF transport operations (both in France and internationally), and SNCF Réseau, managing France's national rail network.

### Mechanism

#### Partnership and Concession Models of PPP

The 2006 PPP legislation envisages two main public-private partnership models in French railway projects, the partnership model and the concession model. The models are similar in many aspects. The main difference is the basis on which the private sector partner is paid for providing the new facilities. The mechanism of each model is shown in Figure 3.

**Partnership model**. In the partnership model, SNCF Réseau pays a rental or availability fee for the asset for the duration of the agreement. The fee will be based on the performance of the private-sector partner against contractual performance indicators related to the quality and availability of the infrastructure. The fee is
not related to the volume of traffic using the infrastructure asset. SNCF Réseau will collect track access fees from train operators, taking the traffic risk. The partnership model is used when forecast traffic is low, so the private sector partner will not accept the traffic risk.

An example of partnership models is the Bretagne Pays de la Loire (BPL) high-speed rail line in France. The BPL line is a 182 kilometer HSR line, connecting Le Mans with Rennes (shown in Figure 4). With the improved travel speed, travel time will be reduced from 2 hours to 37 minutes. This PPP project is focusing on infrastructure only with total investment costs of € 3.3 billion. This line is expected to provide significant economic benefits to western France, through improving their access to major European cities as well as releasing capacity on the existing lines for freight.

Under the partnership model, Eiffage Rail Express (ERE) has been contracted to build this line under a 25-year PPP contract. Eiffage is responsible for building, and maintaining this line for 25 years. As a return, a lease fee of almost 200 million euros per year will be paid to Eiffage by SNCF Réseau for 25 years.

The financial structure of this line is shown in the Figure 5. During the construction of line,
Eiffage will receive contributions from the local government (27 percent of total investment) and RFF (now SNCF Réseau, 42 percent of total investment). Eiffage will also raise the remaining 30 percent of funding by itself, about 1 billion euros via a consortium of 12 banks.

**Concession model.** In the concession model, the private sector investor collects access charges from railway operators who use the infrastructure asset. These access charges pay for the operational costs of the line and for return of the private investment. Rarely are access fees sufficient to provide return on the whole investment, so RFF (now SNCF Réseau) and local and national government fund part of the investment. The concessionaires take risks of project construction, financing, and operation.

An example of the concession model is LGV Sud Europe Atlantique (SEA) line. It is a 303 kilometer HSR line connecting Tours and Bordeaux. This project is the largest greenfield HSR project in Europe with €7.8 billion estimated cost for infrastructure only. The travel time saved will be from 3 hours to 2 hours 10 minutes between Paris and Bordeaux. With the improved accessibility, this line is expected to have about 16 million passengers per year when it opens (in 2016).

This project adopts a 50-year concession model to finance the investment, contracted with Vinci-LISEA consortium in 2011. During the 50 years, LISEA is responsible for all design, construction, and operation. In other words, all design, construction, operation risks, including traffic risks belongs to this private sector. In return, Vinci can charge track fees on trains using the corridor,
including trains from SNCF Mobilités and other train operators.

The total financing of this line (€7.8 billion) included a mix of debt and contributions, shown in Figure 7, with about 13 percent of total costs from RFF (now SNCF Réseau), and 19 percent coming from central government and local government separately. Nearly half of total estimated costs will be raised by the private partner, including:

- €772 million of equity contributed by LISEA shareholders, pre-financed by commercial banks and EIB (European Investment Bank);
- €1,060 million of bank debt guaranteed by the French government;
- €612 million of non-guaranteed bank debt;
- €757 million provided by Fonds d’Epargne, managed by the Caisse des Dépôts and guaranteed by RFF;
- €400 million of EIB credit guaranteed by the French government; and
- €200 million of non-guaranteed EIB credit. European Investment Bank (EIB).

Such PPP arrangements are not without challenges. As the train schedule is now being developed, SNCF is arguing that the track access costs are too high compared to the existing conventional line. SNCF suggests to reduce the number of stops to ensure faster trains. This runs counter to the interest of local authorities which have provided substantial financing for the development of this line and to earlier commitments made by the central government. The concessionaire explains that the rates were set in the original concession agreement and are competitive compared to other similar LGV. The management of such negotiations adds to the project complexity.

Role of Clear, Predictable and Legitimate Institutional Law/Regulation

In France, the PPP legislation clearly identifies the scope and models of PPPs (such as concession or design, build, finance and operate structure), public authorities’ obligations with regard to feasibility and consultation, procurement procedures, issues to be addressed in contractual provisions, payments, the institutional framework and the duration of projects. This clarity allows the private sector to clearly understand the risks it accepts in a PPP deal.

Risk Allocation

In HSR projects with full public funding, the risks of financing, design/construction, operations and maintenance, and traffic all belong to SNCF Réseau. However, the use of PPPs transfers the financing, design/construction, operations and maintenance risks to the private sector. In the concession model, the private sector also takes the traffic risk, while in the partnership model, SNCF Réseau would assume the traffic risk. The allocation of these risks will force the private sector to avoid short-
Governance and Incentives

SNCF Réseau is the owner and manager of French railway network. No matter which financing model, SNCF Réseau remains in charge overall charge and ensure a national perspective in management and development of the network.

SNCF Réseau is governed by a Board of Directors (BOD) that board defines the company’s policy and oversees its implementation. It is composed of representatives from the company (one third) representatives of the state (one third) and representatives of employees (one third). The Chairperson of SNCF Réseau is appointed by the French government’s Council of Ministers following the Board’s proposal. The Chairperson has a responsibility of applying the policy defined by the BOD, improving economic and financial situation of the company, and coordinating the national and territory divisions of SNCF Réseau.

The Board of Directors has four standing committees:

- Strategy Committee
- Audit Committee
- Investment Committee
- Tender Committee

Financial Impact

Impacts on changes of financial structure

As Figure 9 shows, prior to 1997, the initial French TGV lines were financed by SNCF debt on the basis of the lines' estimated profitability. For example the Sub-Est line was fully financed with SNCF debt, while the Nord line had with 20 percent funding from public authorities and 80 percent of SNCF debt.

With the introduction of RFF (now SNCF Réseau) in 1997, all debt related to existing
HSR lines were transferred to the new infrastructure manager RFF (about 20 billion euros, accounting for about 60 percent of SNCF debt in 1997). In this phase, the total investment cost of each project was covered by RFF, together with subsidies from the French state, local authorities, other neighboring states and EU contributions. For example, the TGV Est line, opened in 2007 was 40 percent financed by RFF. (See the second graph of Figure 9).

With the introduction of PPP, the financial strategies and structure have been changed. The private sector contributes financing through either a partnership or concession contract. Between 2010 and 2012, RFF launched four PPP projects (including BPL, CNM, SEA, and extension of the HSR-East to Strasbourg) with the use of private financing. The financial contribution of the private sector varies. For example, in the line of LGV Sub Europe Atlantique (SEA), the private financing reaches 3.8 billion through concession, a little less than 50 percent of the total cost.

Financial impacts for RFF
In the 2013 financial year, RFF declared total gross revenue of 5,690 million euros with a net loss of 60 million euros. Details on the financial trends for RFF are shown in Figure 10. This shows that RFF revenue and operating results improved between 2008 and 2009, when access charges were significantly increased. During 2009 to 2012, operating income exceeded financial charges, and RFF showed a small profit. However, the gap between operating income and financial charges narrowed during the period, and by 2013, RFF recorded a loss.

The long term financial effects of the PPP projects cannot yet be seen in RFF’s financial results. However, the obligation to make availability payments on the partnership concession will weigh heavily on the company’s results.

**Stakeholder Contributions and Impacts**

**Investors:** PPP model gives private sector investors the opportunity to engage in French railway development. For example, the company Eiffage focusing on residential construction, electrical engineering and process automation service. But now, it also has a business for railway infrastructure construction, and is building the TGV BPL line connecting Le Mans with Rennes.

**Customers:** Railway customers have enjoyed better accessibility with expanded railway network.
References


INSEE. http://www.insee.fr/fr/


European PPP Expertise Centre (EPEC) (2012). France-PPP Unit and related institutional framework, European PPP Expertise Center


PPP for Primary Land Development in Shantou City

Relevance to China Railway Corporation

The example of the public-private partnership (PPP) for primary land development in Shantou City illustrates the following three concepts:

- An efficient capital structure can be created for primary land development using the PPP model to improve financing efficiency and reduce debt burden.
- Proper project arrangements can attract the private sector to participate, which helps to manage risks and ensure the smooth implementation of the project and reasonable income allocations.
- An explicit, predictable and legitimate institutional framework needs to be established to guide and regulate the operation of PPP projects.

Impact Summary

A PPP with land developer CITIC is enabling the Haojiang district government to create a modern mixed use development in Shantou City. The planned population is 200,000 people, of which there will be 152,000 people living and 1,000 people working in the planned area (in total 152,000 people), and in total 48,000 people living and working in the coordination area.

According to the planning concept of “one road, two belts, three park and multifunctional district,” the Binhai new town is positioned as an ecological and intelligent Recreational Business District (RBD) including traveling, marine ecology, business operation, sports, culture and residential functions.

Motivation

Construction of Su’ai Tunnel. The local government intends to construct the Su’ai Tunnel, which Su’ai Tunnel is expected to change the landscape of Shantou. Moreover, the local government is also active in promoting urbanization. However, to complete the two important tasks, substantial capital is needed as well as expertise, which the local government does not have.

Reduce Financial Burden for Local Government. For this Shantou PPP primary land development project (referred to as Shantou PPP Project), the private sector and the government were both involved in the early stage for project identification, feasibility study, financing and other project preparations, which ensures the technical and economic feasibility of this project and helps to shorten the early-stage construction period and lower project costs.

Only after the PPP project is completed and approved for use by the government can the private sector gains profits. Therefore, the PPP model can motivate the private sector to improve project construction efficiency, lower project costs and reduce project completion risks and financing risks. Research shows that averagely the
government can save around 17 percent of the total costs through the PPP model as compared to the traditional financing model, and the construction can be finished in due time.

Reduce Government Role. With a PPP model, the government is responsible for monitoring the implementation of the project rather than being a provider of infrastructure services. Thus, its workload can be reduced substantially. It only needs to conduct a feasibility evaluation in the early stage, take full supervision during the project construction stage to improve quality of the project and organize project acceptance in the late stage.

Diversify Investors. With capital and services provided by the private sector, more capital and skills can be offered to the government, which facilitates the reform of the investment and financing system. Meanwhile, participation of the private sector can also promote innovations in project planning, construction and facility management, resulting in improved efficiency and dissemination of best management practices.

Cooperation between the government and private sector can achieve synergy by taking advantage of each side’s strengths while making up their weaknesses. The two parties can develop long-term mutually beneficial goals through the PPP model and provide high-quality public services with low costs.

Allocate Risk. The PPP model allocates risks from the very beginning. The government will take some project risks, which alleviates the risks for constructors and private investors. This makes it easier to get financing. This give the government some control while undertaking the risks.

Experience

Haojiang district government decided that it wanted to redevelop the old waterfront area in the Binhai New Town. But it didn’t have enough money and expertise to do this on its own, so the Haojing district government decided to form a joint venture with China International Trust and Investment Corporation (CITIC) for the primary land development (details of this joint venture are discussed in the ‘mechanism’ section). The partner was selected through open bidding. CITIC was selected due to its well-known capabilities in capital operation, industrial operation and project operation as well as its experience in PPP projects.

Planned area of the project is about 168 square kilometers, as shown in Figure 1. To assure the investment returns for CITIC, the industrial park, logistics park, tariff-free zone and Guang’ao harbor district within the 168 square kilometers are not included in the cooperation scope. The project has around
101 square kilometers of urban construction land.

The total project investment is about RMB 50 billion (US$ 8.3 billion). The scope of the project includes: (1) primary land development, which starts at Nanbin district; 2) land acquisition and the Su’ai Tunnel project; and (3) franchising/agent-construction projects.

The project is planned to take 25 years. The area will be developed in parcels. The first parcel of land to start development is the Nanbin area, for which an eight year of cooperative development period is planned. For other parcels, in principle, the development period should be no more than five years. The time between starting a new project and completing an earlier one is no more than one year in principle. There can be parallel developments to accelerate the overall development speed.

Currently, the master plan is completed and the construction is underway. The Chaoshan historical cultural-style business street and the sculpture garden have been completed. The construction on Su’ai Tunnel began in early 2015.

Industry Structure & Institutional/Regulatory Framework

Industry Structure

The central and local governments have undertaken a variety of PPP pilot projects since 2014. Up to March 16th 2015, the Ministry of Finance has thirty PPP pilot projects with a total investment value of more than RMB 180 billion (US$ 30 billion).

There are three types of PPP projects:

- **Outsourcing.** In this type of PPP project, the government is the main investor, with only parts of the project outsourced to the private sector. There are few risks for the private sector.

- **Franchising.** For this type of project, the private sector is involved for a large portion or even the whole project. The private sector and the public sector share the investment returns and risks through an agreed cooperation mechanism. At the end of the contract period, the project assets belong to the government.

- **Privatization.** The private sector is responsible for all the project investment and is compensated by collecting fees from consumers under the supervision of the government. In this case, the risks for the private sector are the biggest.

The franchising model was selected for the Shantou PPP project.

Regulation Framework

There have been three phases of regulatory development for PPP model in China.

- **Early Stage Documents to Attract Foreign Investors.** Before 2004, the State Council and several ministries issued a series of regulations to attract foreign investors by providing preferential policies for them. These documents are mainly about how to attract and guide foreign investors, but did not mention the basic content and principles of PPP projects.

- **Decree No. 126 and Related Policy Documents.** On May 1st 2004, the Ministry of Housing and Urban-Rural Construction of the People's Republic of China (MHURC). Given the domestic
attempts for franchising, this decree was designed to regulate franchising practices in project preparation, market admission, contract structure, government supervision and operational evaluation. Related documents were issued subsequently. All these documents promoted PPP development in China. However, the Decree No. 126 and subsequently related policy documents failed to cover the conflicts and problems emerging in real PPP projects or provide real solutions.

- **PPP legislation from 2014.** As required by the State Council, the National Development and Reform Commission (NDRC) issued a series of regulations for the promotion of PPP projects (Table 1). For the same purpose, the Ministry of Finance also issued several documents to regulate PPP projects (Table 2).

### Table 1: NDRC Regulations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidance on cooperation between government and social capital</td>
<td>Framework to guide PPP scope, regulation, operation and evaluation.</td>
</tr>
<tr>
<td>General contract guidance about on cooperation projects between government and social capital</td>
<td>General guidance on PPP in partnership, income allocation, unpredictable accidents, contract breach, dispute negotiation.</td>
</tr>
<tr>
<td>Notice on the relevant work about Promoting open Financial Support for PPP projects</td>
<td>Guidance on PPP's promotion.</td>
</tr>
</tbody>
</table>


### Table 2: Ministry of Finance Regulations (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notice of government procurement of PPP projects</td>
<td>To promote PPP, regulates government procurement progresses, covering processed and dispute negotiation.</td>
</tr>
<tr>
<td>Notice of cooperation between governments and social capital in the public utility sector</td>
<td>Framework to define PPP operation in public utilities such as water and electricity supply etc.</td>
</tr>
<tr>
<td>Notice of guidance on fiscal capability in cooperation projects between governments and social capital</td>
<td>Controlling fiscal risks governments have when running PPP projects</td>
</tr>
</tbody>
</table>

Mechanism

Contract Structure

CITIC is the master coordinator, the sole strategic partner of the project, and the master developer.

The CITIC Shantou Binhai New Town Investment Development Co. Ltd (herein, “Xincheng”) was set up by CITIC and is in charge of the entire project development and operation. While CITIC has the autonomy to decide the equity structure of this new company, CITIC needs to ensure that it holds at least 51 percent of the new company’s equity (Figure 2). After this development company was established, all development liabilities and rights CITIC owns were transferred to it. The development company has a registered capital of RMB 500 million (US$ 83 million). The first payment of owner’s equity should be at least RMB 200 million (US$ 33 million); at least RMB 400 million (US$ 66 million) should be paid in six months; and no less than RMB 500 million (US$ 83 million) in 12 months.

The new development company is authorized by the government and responsible for the entire development.

Pre-stage Preparation: Establishment of Dedicated Agencies

For CITIC, a new development company was established to take full charge of the project in Shantou.

The Haojiang District government set up headquarters for the project development in the district and applied to the municipal government for such a unit at the municipal level, to be mainly responsible for coordination between government departments and for document approvals. Haojiang district government also established a “land reserve center”. The land reserve center opened a specific bank account for the project, which is under collateral
supervision of both partners. The bank account is used for the land acquisition and resettlement costs and compensation. A Haojiang District Land and Mining Resources Trading Center was also set up to serve as the platform for land transactions of this project.

**Nanbin New Area Development Case**

**General Profile.** For the Shantou Haojiang District Binhai New Town Development project, the land will be developed parcel by parcel, and sold as each development is ready.

Here we take the Nanbin new area as a specific example. The planned Nanbin new area has 9735 mu of land, out of which 2200 mu of land is saleable operational land (Figure 3).

**Responsibilities of the Two Parties.** The government and CITIC fulfill their responsibilities based on the project CITIC Binhai New Town Project Urban Operation Agreement. Details of their responsibilities in the contract are listed in Table 3.

The district government makes sure that the land supply is no less than 1500 mu per year and no less than 750 mu every half a year. The proportion of saleable operational land should be no less than 50 percent in each land parcel after the land organization. CITIC is responsible for business and project attraction.

**Liability for Breach of Contract.** Details of liabilities of the government and CITIC in the case of contract breach are listed in figure 4. For example, if the agreement is breached by the government, then it needs to refund CITIC the costs of primary land development and investment returns for each development phase within the agreed timetable. If the government fails to do so, it needs to pay an extra penalty equal to 0.05 percent of unpaid capital per day. If the payment is overdue for more than 60 days, CITIC is entitled to terminate the agreement and the government is obliged to pay another penalty to CITIC which is equal to 5 percent of land development costs.

![Figure 3. Nanbin District](image)

*Source: Project contract.*

![Figure 4. Shared Responsibilities & Recourse for Non-Performance](image)

*Source: Project contract.*
Financial Impacts

Land Concession Mechanism

It is confirmed by both sides that planned land will be sold by bidding, auction and listing and included in the government’s annual land supply plan. The district government promised that the municipal land supply will meet the project’s annual land demand. The principle of “separate management, exclusive account and respective accounting” will be adopted. Income from each land sales will be used to compensate for investment costs first and then used for investment returns.

Pricing strategy differs for different land locations. Usually, every city has its own land base price, and the listing price for each land parcel is determined by the base price multiplied by factors such as floor area ratio and green space ratio. For the same land parcel, its price can fluctuate dramatically with adjustments in planning parameters and land use conditions.

Land Development Costs

Land development costs include the following categories:

- Early-stage costs: expenses for land preparation, including land planning, organization, the evaluation process, evaluation of environmental impact, and fair value evaluation process.
- Land acquisition costs: including compensation costs paid to village groups, relocation fees, and compensation costs for crops. CITIC pays the expenses on behalf of the government.
- Demolition costs: costs for demolition of existing facilities owned by residents, farmers, companies and public utilities as well as service fees and evaluation fees for the demolition process.
- Public utilities construction costs: construction costs of public utilities, such as water and electricity supply, and roads.
- Other costs: including construction costs, land levelling costs, intermediary fees, taxes paid by CITIC (excluding business income taxes and individual income taxes), marketing and management expenses confirmed by both sides, unpredictable expenses and financial

<table>
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<tr>
<th>District Government</th>
<th>CITIC</th>
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<tr>
<td>All approval processes</td>
<td>Financing primary land development</td>
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<td>Land reserve relocation arrangements</td>
<td>Budget planning and design of public utilities</td>
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<tr>
<td>Controlling all construction and land administration of project</td>
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<td>Coordination between government departments and CITIC</td>
<td>Recording its land development plans for next year each December</td>
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<td>Monitoring CITIC’s cost control, project quality and completion deadlines</td>
<td>Safety control</td>
</tr>
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</table>

Source: Project Contract.
expenses, and other expenses confirmed by both parties.

**Income Allocation**

The district government needs to refund CITIC fully for its investment costs in primary land development. Thus, land sales income first pays for CITIC’s primary land development costs, taxes and required funds. Any funds remaining are then split, with 60 percent going to CITIC and 40 percent going to the government (Figure 5.)

**CITIC Income**

CITIC receives 60 percent of the land sales revenue, net of its CITIC’s land development costs related expenses and the fund capital (referred to net land sales income). In addition CITIC enjoys certain preferential policies in secondary land development in the district.

For the first four years of the Nanbin area development project, if the accrued expenses are more than 26 percent of net land sales income, or for the last four years of Nanbin area development project, if accrued expenses are more than 28 percent of the net land sales income (these percentages are called the ratio of the upper limit in the accounting period), then the district government will pay for the excessive part beyond the 26 or 28 percent of the accrued expenses. For other districts, the ratio for the upper limit will be determined through negotiations.

**Government Income**

The Government receives 40 percent of the net land sales incomes from primary land development.

However, 50 percent of the investment returns of CITIC and 50 percent of land sales income of the government (referred to as the government rolling income) will not be actually allocated before the completion of primary land development in the district. Instead, they will be reinvested by CITIC in primary land development.

*Figure 5. Net Revenue Allocation*

*Source: Project contract.*
All the government rolling income reinvested in the primary land developments will eventually be paid to the government when the land consolidation is completed for area. Project agreement provides that, CITIC is entitled to invest the government rolling income in the construction of the Su’ai Tunnel as the source of government funds, and CITIC doesn’t need to refund the government for this investment.

**Risk Management**

Risk management measures are taken to guarantee the proper use of capital, to calculate the costs of primary land development and to set up a financial supervision account.

To guarantee the proper use of dedicated capital, the district government founded the “land reserve consolidation center of Haojiang district,” and an exclusive bank account is set up for the Binhai New Town Project, which is supervised and managed by both partners. This bank account is used specifically for the payments of land acquisition and resettlement compensation costs in this project, and cannot be lent, leased or transferred.

When calculating costs of primary land development for a certain land parcel, if the public facilities in the area are not finished, the development costs will be calculated by an investment estimate at the beginning. If the final real costs are greater than the estimated cost, the excessive part will be included in the primary development cost of the next land parcel. CITIC is authorized to manage the financial relationship between different project companies set up by CITIC for primary development of various land parcels, with consent and coordination of the district government.

A special bank account is opened for this PPP project, which is supervised by both parties. All income received from land sales in this PPP project, after deducting all expenses and required funds, will be transferred into this account within two days after the income is deposited in the national treasury.

**Other impacts**

For this PPP project, so far, the detailed planning for the Nanbin area and the detailed construction plans for the Chaoshan historical cultural-style business street and the sculpture garden have been completed.

Construction has started in batches. The roof of the core building, Chaoshan Historical and Cultural Center in Nanbin area’s central axis, have been completed.

Marketing of the Nanbin New Town to businesses has started. Promotional activities and events have been held, such as organizing the forum “A New Way of Urbanization through the PPP Model”.

**Stakeholder contributions and impacts**

*Promotion of Infrastructure Construction and Industrial Development in Haojiang District.* The PPP approach accelerates urbanization of the Haojiang District and optimizes the urban function layout. Since
2013, over RMB 6 billion (US$ 1 billion) has been invested in infrastructure construction.

Secondly, the project promotes the industrial development of the district. For instance, we see more and more projects launched in the industrial parks. Moreover, the scale of the modern, ecological agricultural and tourism industries have been gradually increasing.

**Government Support.** Certain preferential policies for key construction projects in Guangdong Province and Shantou City are applied to this PPP project.

50 percent of the infrastructure fees collected by the government in the Nanbin area will be transferred to CITIC within 30 days in the form of financial subsidy.

The government promises that if the land sales revenue fails to fully cover CITIC’s costs of primary land development, the government will pay for the difference.
**Reference**

Haojiang Government (2014). Economic report in Haojiang district in December 2014. Retrieved from [http://www.haojiang.gov.cn/%E6%94%BF%E5%8A%A1%E5%85%AC%E5%BC%80/%E7%BB%9F%E8%AE%A1%E4%BF%A1%E6%81%AF/%E7%BB%8F%E6%B5%8E%E7%AE%80%E5%86%B5.aspx](http://www.haojiang.gov.cn/%E6%94%BF%E5%8A%A1%E5%85%AC%E5%BC%80/%E7%BB%9F%E8%AE%A1%E4%BF%A1%E6%81%AF/%E7%BB%8F%E6%B5%8E%E7%AE%80%E5%86%B5.aspx)

Haojiang News (2014). Report on the Work of the Haojiang Government. Retrieved from [http://www.haojiang.gov.cn/%E6%94%BF%E5%8A%A1%E5%85%AC%E5%BC%80/%E5%85%9A%E6%94%BF%E5%85%AC%E6%96%87/%E5%8C%BA%E6%94%BF%E5%BA%9C%E5%B7%A5%E4%BD%9C%E6%8A%A5%E5%91%8A.aspx](http://www.haojiang.gov.cn/%E6%94%BF%E5%8A%A1%E5%85%AC%E5%BC%80/%E5%85%9A%E6%94%BF%E5%85%AC%E6%96%87/%E5%8C%BA%E6%94%BF%E5%BA%9C%E5%B7%A5%E4%BD%9C%E6%8A%A5%E5%91%8A.aspx)


Tokyu Corporation and Futakotamagawa Station Redevelopment Project

Relevance to China Railway Sector

The example of Futakotamagawa Station redevelopment project on the Denentoshi line in greater Tokyo, Japan, illustrates the following concepts:

- Accessibility and agglomeration benefits from railway investments can be internalized by a rail company by securing land around stations through purchase or land readjustment at the time of developing a line, and by developing such land over time.
- The suitable type of property development around rail stations is highly market dependent;
- The quality of life and public space, combined with accessibility and agglomeration economies are driving forces for value creation; and
- Redevelopment in Japan is a mechanism requiring time, an active partnership between public-private stakeholders, as well as public sector funding.

The approach has relevance for China Railway Corporation and to cities in China, considering recent State Council Directives (2012[64], 2014[37]) encouraging the integrated development of areas around stations. Its applications in China would warrant a number of adjustments to reflect the legal and planning framework for land management, institutional responsibilities of cities, CRC or urban rail companies.

This case study illustrates some of the mechanisms in place in Japan. It is based on the book Financing Transit-Oriented Development with Land Values (World Bank, Suzuki and all, 2015), which contains other examples.

Impact Summary

Tokyu Corporation has been involved in property development around transit stations over the last decades, and property development has been a major source of its income. Between FY2004-14, real estate accounted for about 35 percent of its operating profit (about ¥ 259 billion-RMB13.4 billion equivalent) and transport (railway and feeder bus services) about 40 percent. It secures about 24 percent of its operating profit from retail, leisure and hotel services, which indicates the growing importance of providing multiple services with railway investment and real estate development, helping support the railway’s long-term operation and maintenance costs.

The redevelopment around Futakotamagawa Station was started in 2000 and is expected to be completed by 2015. It is an illustration of the next advance in TOD, architecture and urbanism. The first phase of this project, which was completed in March 2011, has
added two new shopping malls, a 16-storey office building and five residential buildings providing 1,033 new apartments to the east of the station.

The apartments, ranging in price from ¥ 46m to ¥ 220m (equivalent to around RMB 2.3 million to 11million) for a 140 sq m apartment, went on sale in 2008. In spite of the economic slump and the prospect of more construction work during the second phase of building, all but 12 units at the higher end of the price range had been sold by 2012. Tokyu Corporation is funding the cost of development to a large extent by direct sales (RMB6 billion equivalent), while keeping part of the newly developed property for long-term income generation.

**Motivation**

Given the high cost of developing new rail lines in densely developed Tokyo, investors need to maximize all types of income they can derive to make such lines financially attractive. This implies stimulating traffic along new lines by ensuring enough people and activities are gathered around stations, as well as creating stable cash flow and recouping some of the investment costs through real estate development income and appreciation.

Tokyo's railway companies have historically leveraged real-estate development to both pay for infrastructure and produce a profit for shareholders. They have also developed ancillary projects like in-station convenience shopping and integrated shopping malls (Cervero, 1998).

In recent years, with a shrinking and aging society, demography has become a critical factor for rail companies requiring them to update their development model to ensure its sustainability. Such changes have called for a range of new types of redevelopment projects and unconventional services (Tokyu Corporation 2013).

**Experience**

The Tokyu Corporation is Tokyo’s largest private railway company, a major private railway operator (with 8 railway lines) and a land developer in the Greater Tokyo Area of Japan. It was established in 1922, and its current business portfolio mainly includes railway business, urban development business (development of houses, apartments, buildings and commercial facilities, property lease, management and investment for office buildings), lifestyle services (retail services, cultural facilities, cinemas, sporting facilities, travel agencies, cultural schools and other daily living services), and hotel and resort business.

According to the medium-term management plans of Tokyu Corporation which define its group management policy, the company focuses on achieving growth through a

1 http://www.ft.com/cms/s/2/81aefc64-5310-11e1-950d-00144feabdc0.html
strong collaboration and integration of its three core business areas of transportation, real estate and life service. The three core business areas are interdependent and synergistic. They reinforce the overall profitability of Tokyu Corporation by adding value to basic rail service areas in step with times and generating sustainable profits.

Among the many railway companies active in Tokyo, Tokyu Corporation is internationally well known for its development-based land value capture practices over past decades and was among the first to advance the business model of railway and new-town co-development.

Tokyu Corporation’s market includes about 490 square kilometers across the 17 jurisdictions, with now some 5 million residents in 2.5 million households whose income is 50 percent higher than the national average. The regional map of Tokyo area with the Garden City is shown in Figure 1.

Its development strategy in recent years has evolved to tackle the major demographic and business changes along railway corridors. Over the last decade, for example, its markets have gained about 400,000 residents, and the proportion of adults older than 65 has increased from 15 to 19 percent—an aging trend set to continue for the next two decades and reach 29 percent by 2035.

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2 Tokyu Corporation 2014.
The Denentoshi Line is one of Tokyu's most crowded commuter lines which serves as a major artery providing access to central Tokyo. This line is composed of an underground section that starts in Shibuya and ends at Futakotamagawa (9.4 km away), and an above-ground section, which passes through many suburbs of Tokyo and Yokohama, making it an important commuter line for people that work in Tokyo.

Tokyu Corporation launched the concept of garden city in 1953. Such concept included the provision of larger, clean houses for commuters living in Tokyo. The garden city aimed to attract many white collar workers to the new towns along the line. Tokyu Corporation practiced a garden city concept for property development along its Denentoshi Line extensions between 1966 and 1984.

The garden city development is high-quality and self-sufficient and supports a well-mixed variety of businesses within a suburban setting: offices, banks, universities and private schools, medical and community.
centers, public service branches, department stores and supermarkets, hotels, and recreational facilities.

Of all the markets covered by Tokyu Corporation, the garden city districts account for about 50 square kilometers with 600,000 residents along the Denentoshi Line.

The Futakotamagawa train station area is located in the southwestern suburbs of Tokyo, on the Denentoshi line, about 19 kilometers southwest from the central business district (Tokyo Station) and 9.4 km away from Shibuya station, where Denentoshi line and Yamanote line intersect. Approximately 77,422 passengers use the facility every day, riding on two suburban rail lines, the Tokyu Oimachi and Tokyu Denentoshi, which connect the suburb to the urban core in less than thirty minutes\(^3\).

The Futakotamagawa Station redevelopment project (Figure 2) was started in 2000 and is expected to be completed by 2015. The five redevelopment packages it includes seek to form a new center for commercial, residential, and leisure activities, with urban accessibility around Tokyu’s railway station and suburban amenities by the Tama River.

The project is designed in part to reflect the demographic changes in Japan and Tokyo, and the need for strategic and well-designed cities to attract workers and population by including a number of unconventional service facilities. The Futakotamagawa area was ranked as the 4th most attractive town to live in the Tokyo Metropolitan area in 2013 and the 6th in 2014\(^4\).

**Industry Structure & Institutional/Regulatory Framework**

The metropolitan area of Tokyo is covered by the world’s largest urban railway network, with many public, semiprivate, private, and privatized passenger lines.

Railway agencies are licensed to develop and operate new lines listed in the national government’s regional network plan. Under the general development model, public and private sector agencies built, owned, and operated rail lines over the past few decades.

The mechanisms to support the development of rail lines has evolved dramatically over time, in line with evolution in real estate value in the Tokyo area.

The nationalization of main railway lines in 1906-1907 forced private railways to focus on secondary rail corridors and to seek alternative ways of financing themselves to survive and thrive despite lower traffic volumes. Many private railways branched out into real estate to that end. The rail lines were used primarily using land value capture with large volumes of land purchased at low cost.

The second generation coincided with the rapid urbanization of Tokyo, and strong demand for new housing and public

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\(^3\) Tokyu Corporation 2009a;

\(^4\) Based on Questionnaires of MAJOR 7;
transport to the center of Tokyo. This is the period (1950s-1970s) during which the new Denentoshi line was built and garden cities were developed, financing the development of lines. As profits from railway development have fallen since the 1970s, the national government has steadily raised its financial assistance to cover railway agencies’ construction costs by setting up project-based subsidy programs.

Private railway corporations with local governments and private developers of new town have adopted other funding mechanisms as well, such as land readjustment projects that save land acquisition costs and promote real estate developments simultaneously or direct contribution to the construction cost of lines. Railway corporations leveraged the expected increase in accessibility brought by new lines to get collaboration of landowners, and to pursued common interests.

Traditionally, development entities—including public housing agencies, local planning and road departments, and private railway corporations—acquired low-priced agricultural land before new rail lines came to suburban areas. They then proceeded with real estate development with full public services.

Land readjustment has been the most important instrument in forming rail-supportive landscapes over the past few decades. It is done in close cooperation with the planning authorities from which approval is needed to decide the future station locations. Using the land readjustment approach, multiple landowners could organize a cooperative body that consolidate irregularly shaped agricultural parcels, returning smaller but fully serviced and regularly shaped residential and commercial parcels with higher property value to the original landowners. A rail company can take a leading role in administrating such cooperative. Roads, utilities, parks, sidewalk networks, station plazas, open spaces, and other infrastructure, including railway development costs were funded partly by the sale of the land reserved from the original owners for new private development and public services (Murakami 2012).

For the Tama Garden city, Tokyu Corporation played the lead role in the land readjustment cooperative. It acquired a third of all the developed residential land, while initiating city development. In particular it took the business risk of acquiring all the reserve land in a batch. As much as 220 hectares of land was sold over a seven-year period around the time of railway opening (1966) representing 25% of the cumulative land areas Tokyu Corporation sold by 2003 to help finance for investments (Nippon Sekkei 2013).

Land readjustment is often administered alongside the national government’s Road Program or Urban Street Program. These programs essentially subsidize transit-
oriented infrastructure and facilities, such as bus lanes, station plazas and transport terminuses, pedestrian access and circulation systems, bicycle parking, urban green space, and street amenities on the basis of the former Roadway Special Fund.

Land readjustment is harder to carry out in already built-up areas, as development regulations there are inadequate for landowners to reassemble their properties and regenerate large capital gains from their land parcels. Thus, a stronger incentive mechanism is needed to endorse the profitability of second- or third-generation development activities and to ensure another development project is available for local governments and private stakeholders.

New railway projects require Tokyo’s public and private agencies to raise huge capital funds from various sources including fare revenues, public investments, bonds, subsidies, zero-interest loans, long-term debt, and land value capture (for which an important mechanism is property development around the rail stations). Most railway agencies reserve a portion of their fare revenues to finance future extensions.

Under the Urban Redevelopment Law, in the case of urban redevelopment, the national government pays for a third of the costs of site survey, land assembly, and open space foundation using the national general fund, and half of public infrastructure costs using the (former) Roadway Special Fund.

Multiple property owners usually establish one cooperative entity to receive

Figure 3. Inclusive urban redevelopment scheme, Japan (hypothetical)

Source: Financing Transit-Oriented Development with Land Values (World Bank 2015)

Note: FAR=Floor Area Ratio. Under the Urban Redevelopment Law, landowners (A,B,C,D,E,F and G) and tenants (a,b,c,d and f), and developers can create development opportunities in built-up areas, typically where a metro station exists or has newly opened. To capture the potential accessibility benefits conferred by the metro station, the local government first converts zoning codes from single use to mixed use with higher FAR. The figure presents stakeholders’ contribution to land values before urban redevelopment (left) and their benefits after the redevelopment (right).
government subsidies, consolidate separate land parcels into one developable site, and build one or more high-rise buildings with new access roads and public open spaces. The local planning department then reviews the proposed plan for redevelopment, changes zoning codes, and increases maximum Floor Area Ratios (FARs) in the target redevelopment district (typically around rail transit stations where the potential of commercial land use is high). Through this process, the original owners and tenants are entitled to keep the property rights of floor spaces in the new building(s), which are valued as equal to their original property, or one developer can take up all property rights to speed the redevelopment project for broader social purposes. The “surplus” floor area permitted by the local government is sold to new property owners to partly cover the costs of land assembly and public facilities within the district (Figure 3).

It is worth noting that the above applied mostly to commuter lines. In Japan, most of intercity railways were developed by National Railway as transport infrastructure with public budget support. Later, when the national railway was privatized, privatized JRs started to adopt land value capture for station areas development using depot or develop terminal buildings.

**Mechanisms**

The key mechanisms used for the Denentoshi line and the Futakotamagawa redevelopment are as follows:

**Internalization of accessibility and agglomeration benefits by Rail Company**

The Tokyu Corporation Tama Denentoshi Line is a good example of how railway companies internalized accessibility and agglomeration benefits from private railway investment from the late 60s to early 80s. Tokyu Corporation bought large tracts of agricultural land prior to building the Denentoshi rail line. It then developed rail integrated communities along the line over time, with massive housing construction supporting Tokyo’s middle class suburbanization. This allowed the company to capitalize on the land appreciation.

In other cases, private railway agencies collectively carried out land readjustment projects or proactively purchased land parcels around stations (under the market freehold system in Japan) and internalized the capital gains from real estate businesses and development opportunities.

**Mechanisms**

The ongoing redevelopment around
Futakotamagawa Station reflects the corporation’s new strategy and key approaches to recent and projected market trends.

The Futakotamagawa station redevelopment project, as one of the largest redevelopment projects in Tokyo, is progressing near Futakotamagawa station on a 11.2 hectare block at the site of the former Futakotamagawa amusement park.

It targets well-defined groups. The inner-city office space included in this mixed-use development targets innovative industries and creative workers, distinguishing itself from other office buildings for conventional white-collar businesses in Tokyo’s central areas.

The corporation has also differentiated the new shopping facilities for younger consumers from existing retail stores for elderly residents around the station. This includes, for example, the opening of the Futakotamagawa Rise Shopping Center in March 2011, a center expected to house about 150 specialty shops targeting young women in their 20s and 30s.

Such approach is in strong contrast with developments undertaken in the 70s and 80s.

Integration of transport and commercial hub with high-quality livable environment

The Futakotamagawa station redevelopment has to take a high quality integrated approach to attract its target groups. It aims to achieve urban development where everyone could live in comfort, making use of the site’s inherent natural resources and geographical situation as a gateway to West Tokyo while further advancing the favorable living environment and established commercial hub.
Specifically the area is being revitalized by reinforcing commercial and business functions around the station while developing the water and green space in harmony with the surrounding rich natural environment. This includes major public subsidies (¥36.6 billion/ US$ 355 million) for the development of public facilities, such as a transit plaza, local roads, and parks.

This uncommon combination of urban and natural environments allowed the rapid sale of new apartment like the Futakotamagawa Rise Tower & Residence apartments completed in May 2010.

Inclusive and long-term redevelopment scheme

Redevelopment entails reaching agreements among many parties. In the case of Futakotamagawa, it involved more than 200 landowners and tenants in inclusive and complex floor area reallocation procedures. Figure 4 illustrates the number of landowners, land tenants, and building tenants before and after the redevelopment. Owning more than 95 percent of the property rights around the station, Tokyu Corporation has made a real effort to integrate multiple objectives and functions into one redevelopment so as to generate recurrent benefits through synergistic area management activities rather than temporary profits from speculation (Murakami 2012).

Nonetheless considering the high cost of such redevelopment, substantial public subsidies were also required to develop accompanying public facilities through an urban redevelopment scheme that raised public subsidies (¥36.6 billion/ US$ 355 million) to supplement the substantial floor area sales (¥100.1 billion/US$ 971 million) used to fund the redevelopment. This overall process has taken nearly 15 years.

Financial Impact

Transport, property development and retail and other business and life services have been major income sources for Tokyu Corporation. The company’s operating profit shares from multiple business practices for FY2004-14 are shown in Figure 5.

Other Impacts

The (re)developments around the Futakotamagawa station have also increased the ridership for the Denentoshi line owned and operated by Tokyu Corporation (Figure 6), which furthermore attracts more customers for the retail shops and other life services provided by the company in the area.

Stakeholder contributions and Impacts

Local landholders and tenants: They provided their land parcels for the new buildings, and in return got the joint ownership of land for new buildings with
higher access and better local infrastructure and service provision.

*Tokyu Corporation*: It was the constructor and operator of the Denentoshi line and owned over 95% of the total area around Futakotamagawa Station. Through the redevelopment, Tokyu Corporation has created a transit-supportive environment, which further increases its ridership and recurrent profits.

*National government*: It provided subsidies for land assembly and road construction, and on the other hand, its costs for road and other public infrastructure construction were reduced as these public facilities are provided by Tokyu Corporation.

*Local authorities*: They are supportive in changing the zoning code from single use to mixed-use with higher FAR, which in return helps to yield higher property taxes, promote local economic development and build townships resilient to natural disasters.
References


Nikken Sekkei (2013) Integrated Station City Development - the Next Advance of TOD, Architecture and Urbanism


London King’s Cross Regeneration Program

Relevance to the Chinese Railway Sector

The King’s Cross redevelopment program illustrates how a rail company (London and Continental Railways, LCR) and its partners are in the process of generating high increases in real estate market value, near a major railway hub, by leveraging high connectivity, high quality public space, public private partnerships (PPP) and public consultation.

LCR was set up as a private railway construction and operation company. It has now been turned into a state-owned railway property development and management company.

This program entails the transformation of a 27 ha (390 mu) area in central London on former rail land to the north of King’s Cross and St Pancras stations into a mixed use urban regeneration project with up to 739,690 sqm of floor space. This regeneration program, one of the largest in Europe, has managed to attract some leading tenants like Google, and turned a disused area of London into a new vibrant urban space. It is also expected to provide substantial returns to its developers in the medium to long term. From a planning perspective, King’s Cross is a pretty unique development, considering the six years it took to design and negotiate, the four rounds of public consultation that involved around 30,000 people and led to a well-tailored solution for urban regeneration.

There are four relevant key concepts for railways:

- Major market value can be generated around highly connected hubs, with substantial market potential, when combined with high quality public space;
- PPP is an effective instrument for infrastructure funding and property development of this type, to find the right balance between the developer’s long term aspirations to create and manage an estate and the local authority’s desire to integrate it into the surrounding communities. The master developer can bring a wide range of skills and help secure long term financing;
- Active public participation can ensure a strong buy-in of stakeholders and achieve better results; and
- Such development requires long-term commitment and flexibility to reflect evolving market needs.

The approach has relevance for China Railway Corporation (CRC) and to cities in China, considering recent State Council Directives (2012[64], 2014[37]) encouraging the integrated development of areas around stations. Its application in China would warrant a number of adjustments to reflect the legal and planning framework for land management, institutional responsibilities of cities, CRC or urban rail companies.
Impact Summary

The main expected impact is to turn a formerly derelict part of central London into a high value and high quality space benefitting from high level of connectivity, while also bringing substantial returns to the developer.

According to an assessment by LCR in 2009, the incremental economic impacts of High Speed 1 (HS1) combined with the regeneration of King’s Cross are estimated to result in about 22,100 permanent jobs and 2,000 dwellings in the area. By 2020, it anticipates that up to 50,000 people will be studying, living and working in King’s Cross. It is expected that when the regeneration scheme is complete, a total value of nearly £5 billion will be created. By March 2014, over 57 percent of the redevelopment project by floor area has been either completed or committed. Commercial space is thriving with occupants such as Google, BNP Paribas Real Estate, and Louis Vuitton, which will bring more value and people to this area. Google has spent about 650 million £ (RMB 6.8 billion) to buy and develop a 1 ha site in Kings’ Cross. Between the initial stage of development and 2014, average blended price of houses increased from £700 per square foot to £1,400 (ULI 2014) and rents for commercial space have exceeded initial expectations.

From the financial year ended at March 31 2013, LCR has started to recognize its share

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of the regeneration profits of King’s Cross Central Limited Partnership (the development partnership for King’s Cross, of which LCR owns 36.5% of share), which amounted to £78.8 million for that year, as compared to a loss of around £11.7 million for the previous financial year. This rose to £85.1 million for the financial year ending on March 31, 2014. The increases are primarily due to the disposal and revaluation of investment properties held in King’s Cross.

Motivation

King’s Cross Terminus—with the stations of St. Pancras and Euston—is expected to function as the principal transit center for London. The 2004 London Plan anticipated King’s Cross to become the best accessibility location in Greater London with the completion of the Channel Tunnel Rail Link - High-Speed 1 (HS1), Thameslink 2000, and the Cross River Tram (Figure 1). King’s Cross is also the biggest inner-city transit interchange in London, linking six metro lines at one venue.

In Victorian times, King’s Cross was an important industrial transport center, but by the late 20th Century, the area had become a series of disused buildings, railway sidings, warehouses and contaminated land. By the 1980s, it had some of the lowest rent areas for central London with ample vacant land.

Early plans in the 1980s for redevelopment fell through, due to weak market conditions and the uncertainty of delivering the Channel Tunnel Rail Link-High Speed 1 (HS1) and related development projects. The location of King’s Cross, to the North of central London, was also not aligned with London’s focus on regenerating its East side (Docks).

Over the past decade, London started to experience growing market demand, with a rapid increase in the number of jobs in the City of London and in particular in central London (reaching densities of 155,000 per square kilometers), and in the rapidly developing Canary Wharf.

The 1996 decision to move the Channel Tunnel Rail Link (HS1) from Waterloo to St Pancras station (facing King’s Cross station) became a catalyst for change in the King’s Cross area. It involved major infrastructure investments in the St Pancras station and its surroundings, with reconstruction of interchanges to the metro links. The area was identified as one of five “Central Area Margin Key Opportunities” in the strategic planning guidance for London. The landowners – London & Continental Railways (LCR) and DHL (formerly Exel) decided to develop the land.

The landowners were also encouraged by the major implications of upgrades and restoration of the Underground stations and national mainline stations on the site that were set to be complete by 2007. They realized that any proposal needed to respond to and accommodate the large numbers of people who would be using the new international interchange.

“More than 63 million passengers will pass through the combined King’s Cross–St Pancras interchange by 2022. King’s Cross, as a place, must be attractive to them. It must also be safe, easy to understand, and easy to
navigate," outlined the landowners and Argent (the developer of King’s Cross) in a 2001 consultation document.

The change in market demand combined with the strong increase in connectivity in an area with 27 ha of under-developed land provided the ground for a high-end transformational project, unique by its scale and by the use of a single developer for the entire area.

Experience

LCR has played a crucial role for the regeneration around King’s Cross. In 1996, as a private consortium, LCR was selected by the UK Government to build and operate the high speed Channel Tunnel Rail Link (CTRL), now called High Speed 1 (HS1). It subsequently ran into financial difficulties and has been owned by the Department for Transport (DfT) since 2009. After the delivery of HS1, in November 2010, LCR sold HS1 with its 30 year concession for the track and stations to a consortium for £2.1 billion.

Today, LCR’s primary focus is in the area of property development and land regeneration. LCR is a joint venture partner in two major regeneration programs, at King’s Cross, in partnership with Argent and DHL, and at the International Quarter, Stratford City in partnership with Lend Lease.

From the very beginning, one of the key objectives behind HS1 was to stimulate regeneration in inner London and in particular around King’s Cross. “Construction of HS1 made about 20 hectares of the underused land available for high-density commercial development as well as housing provision around King’s Cross – St. Pancras” (Mayor of London 2004).

As part of the financing arrangements for the construction of HS1, the Department for Transport (DfT) provided cash grants, underwrote a bond issue and provided property development rights around King’s Cross and Stratford stations to LCR.

In 2001, Argent, one of the UK’s respected property developers, was selected as a private development partner for King’s Cross regeneration program, given its rich experiences in regeneration and mixed-use developments.

The project started with several years of intensive studies and consultation with local community, government and other stakeholders. The work formed the basis for a vision for the development, from which the master plan evolved.

The London Borough of Camden granted outline planning permission for regeneration in 2006, with a target completion date of 2016. LCR, Argent, and another landholder—DHL—jointly formed the King’s Cross Central Limited Partnership in 2008, which became the single land owner and developer around King’s Cross.

About 27 hectares of the land is planned to contain more than 1,900 homes, 50 new and refurbished office buildings, 500,000 square

2 http://www.lcrhq.co.uk/about-lcr/
feet (about 47,000 square meters) of shops and restaurants, 20 new streets, and 10 major new public spaces for a projected 50,000 people (Figure 2). While the majority of private floor space will be allocated to produce business profits, more than 40 percent of the redeveloped former brownfield site will be used for public purposes, and, across the redevelopment site, 20 historic buildings will be restored for modern use (King’s Cross 2014).

The development at King’s Cross is fast becoming one of the most attractive places to live, work and visit in London, and there has been strong demand for both the offices and residential units, together with restaurants and retail shops opening. The first phase of the regeneration project started with a £100 million construction contract, the University of the Arts London, which opened its new campus in autumn 2011. Google has spent about £650 million to buy and develop a 1 ha site from KCCLP on a 999-year lease. The finished development [93,000 m²] will be worth up to 1 billion £ (RMB 10.5 billion). Several thousand staff will occupy the low-rise structure when it is complete. The building will form an important part of King’s Cross scheme and it will become the internet search firm’s largest office outside its Googleplex corporate headquarter in California. The building includes 4,650 m² of ground-floor retail. Google presence is expected to draw other technology companies to King’s Cross - especially small start-ups - and help bump up rents.

### Industry Structure & Institutional/Regulatory Framework

As the HS1 project was completed and opened new development opportunities in London, LCR was restructured from a railway construction company into an entrepreneurial property development and asset management agency.

For the railway related property industry, many of the sites around railway facilities are owned by public agencies, including DfT. DfT-related agencies hold 87,944 assets across the United Kingdom. In addition, the local governments of Greater London, LCR, and other related agencies...
manage their own properties next to railway facilities.

The related institutional and regulatory framework for land redevelopment mainly includes the following parts:

**Planning Guidance**

Strategic planning guidance for London, published in 1996, had identified King’s Cross as one of five “Central Area Margin Key Opportunities.” It declared that a mixture of land uses should be accommodated, with the highest densities and most commercial uses closest to the rail terminals.

It also required that residential and community facilities be used to support and regenerate local communities. Planners also asked for a quarter of “distinct identity” that enhanced features of historic and conservation importance.

Both the London mayor’s spatial development strategy, “The London Plan,” and Camden Council’s Unitary Development plan reflected these objectives, with Camden outlining regeneration of the severely deprived surrounding wards as a priority (ULI report 2014).

**Section 106 of the Town and Country Planning Act of 1990 for development permission**

One key land value capture technique adopted by local governments in England and Wales is their use of Section 106 of the Town and Country Planning Act of 1990. This section provides a means for local authorities to negotiate agreements or planning obligations with a landowner or developer in association with the granting of planning permissions. Section 106 agreements can be financial in that landowners or developers are required to make some sort of financial commitment (lump sum or recurring) in exchange for development permission; or can be in-kind support to local interest, such as affordable housing or community facilities. S106 agreements have to be related to offsetting the impacts of the development, and be in accordance with an approved plan. They can not be cash payments for general community services. The rules are clearly set out in Government guidance. Once a Section 106 agreement is signed and planning permission is granted, developers have three years to exercise their property development rights, or the permission lapses (London Borough of Newham Strategic Development Committee 2011).

**Spatial Coordination around King’s Cross**

The mixed-use redevelopment of the King’s Cross site has involved a long process of spatial coordination with three local authorities: Camden Council, adjoining Islington Council, and the Greater London Authority. There has also been close consultation with related statutory bodies (such as English Heritage over buildings to be preserved) and with local community groups through the King’s Cross Development Forum (Gossop 2007; King’s Cross Railway Lands Group n.d.). In 2006 the Camden Borough Development Control Committee gave planning permission for redeveloping the King’s Cross brownfield site via a Section 106 agreement, reflecting the consultation
process of spatial coordination with local stakeholders (Camden Council 2006).

In policy terms, the time was right to develop the area – London introduced a policy allowing the construction of high rise or high density buildings only when next to a transit hub or alternatively when the developer committed to build such connection by itself. This made the highly connected King’s Cross Central area an attractive location for development.

**Mechanisms**

*Generating high market value around a highly connected hub with substantial market potential through high quality public space*

King’s Cross, in the core of London, is a major interchange station at the scale of the city, of UK, and of Europe. King’s Cross is the biggest inner-city transit interchange in London, linking six metro lines at one venue. King’s Cross Central combines 2 major train stations (International high speed Eurostar and domestic). King’s Cross is also one of the busiest routes for buses (17 routes). Its ridership is up to 140,000 commuters, visitors and residents per day. Passengers can reach the center of Paris in 2hrs 15, Brussels in 1hr 51 and Lille in 1hr 20. These destinations will be joined by Amsterdam, Cologne and Frankfurt via Deutsche Bahn’s high speed ICE. This transport hub is expected to support 63 million passengers a year from 2020.

When King’s Cross site became an integral part of HS1 development, plans to redevelop it went ahead. To the north of the two train stations, there were 27 ha of underdeveloped land, and there was a strong imbalance between a very high connectivity and a low intensity of land use.

King’s Cross regeneration program aims at delivering an accessible, high-quality mixed-use environment with a strong focus on art, culture, and heritage. The provision of good quality public space enhances the image and appeal of a location. Over £2 billion has been spent on the local transport infrastructure, including St Pancras station and public realm. The master plan presented a network of public open spaces, streets, lanes, squares, and parks that permeated the urban blocks and made connections beyond the site into the wider city.

The development of the site is anchored in a vision under which it transforms from a slightly excentered derelict place to a core part of central London, that would work 24 hours a day and seven days a week and would be open, democratic and accessible. That meant dividing the area into development zones, with maximum building heights, and environmental specifications, but also producing hundreds of urban design analysis to define possible use and leveraging the existing historical heritage in the area like Granary square.

The public realm is high grade but it is not just “corporate” or designed to create high rentals. The historic fabric was embedded in the plan in a sophisticated manner, rather than purely preserved. Each retained building has a new use, and each has a relationship to its neighbors and the spaces in between.
Public-Private Partnerships (PPP) for infrastructure funding and property development

In London, local governments and the private developer redeveloping the King’s Cross rail yard stress the importance of sharing the costs and benefits conferred mainly around the newly integrated transit terminus.

The partnerships and stakeholders involved in the redevelopment scheme around King’s Cross are shown in Figure 3.

- **Partnership with the private developer**
  KCCLP is the single land owner at King’s Cross, making development and delivery easier. The partnership brings together three groups: U.K. property developer Argent (owning 50 percent interest via Argent King’s Cross Limited Partnership); the now U.K. Government-owned LCR, holding a 36.5 percent interest; and DHL Supply Chain (formerly Exel), with a 13.5 percent stake.

  Many of the people working on the project have been involved from the beginning. This brings an unusual level of continuity and commitment. A holistic approach was adopted for the regeneration of Kings’ Cross regeneration scheme. All the landowners are working together within one overarching, shared vision.

  LCR selected Property developer Argent in 2000. It entered a joint collective ownership acquisition and development agreement with the landowners, LCR and DHL. This deal included an agreement that the land was to be valued based on its open market value following the approval of planning permission and completion of the Channel Tunnel Rail Link. Upon valuation, Argent would have the option to acquire the land from the landowner or enter into a 50/50 partnership, and finally a long-term 50/50

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**The mixed-use scheme around King’s Cross is developed by the King’s Cross Central Limited Partnership (KCCLP).**

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Figure 3. Stakeholders and partnerships in the redevelopment scheme around King’s Cross

*Source: Financing Transit-Oriented Development with Land Values (World Bank 2015)*
development partnership was decided. The price paid by Argent was to be discounted according to that value, with that discount increasing as the open market value of the land rose. The deal incentivised Argent to optimize the value of the scheme. The agreement was that the crystallization of land value would come when, on the one hand the landowners LCR and DHL could provide vacant property, which came about once HS1 was completed and open, and on the other hand when the developer had completed planning, a viable business plan, and secured funding. It was designed to happen when certainty had been delivered by all parties, for the benefit of all parties.

With a strong portfolio of urban regeneration projects and mixed-use development, Argent proceeded to plan, manage, and deliver the scheme starting in 2001. Argent started from a blank piece of paper and built the scheme on principles, precedents and then realized these in the master plan. Aside from active public consultation, there were also two master planning teams and four independent design review panels that allowed for the development of a tailored solution for the site over six years of planning.

The master planning and consultation were paid for by Argent King Cross Limited Partnership, the developer, but were offset as upfront cost within the financial arrangements with LCR. The developer took the overall planning risk.

Argent brought the backing from a large pension fund (BTPS managed by Hermes Investment Management), essential for the private development of the site.

The partnership has made a £250 million investment in infrastructure at King’s Cross Central since 2009, which has unlocked the 6 million square feet (557,000 sq m) of development on the project. The partnership’s equity funding went towards new roads, new public spaces, a new bridge across Regent’s Canal, canal-side improvements, and the Energy Centre and its associated district heating and distribution networks (ULI 2014).

LCR adopts a long term strategy with respect to the development of King’s Cross Central. It focuses on minimizing property cost and maximizing the value of assets (DfT 2011). Land is valued in nominal terms in its financial statement. The value of land matures overtime as development takes place.

According to DfT (2011), LCR management of its portfolio of property includes: Marketing and sales of the smaller surplus land sites; Adding value to the smaller and medium sized sites by resolving any planning and land issues; Concluding existing property obligations in relation to LCR properties; Board representation on the joint venture companies which have been or are to be established; Participating in joint venture company working groups to monitor the progress of the schemes and address any issues that LCR can assist with, particularly in relation to public bodies etc.; Approval of joint venture budgets and business plans to ensure value is created for the joint venture rather than being diverted into development partners management fees; and assisting
partners with any transport or Olympic interface issues.

The primary risks for the business relate to the uncertainties of the economy and in particular the strength of the property market. These risks are managed actively through the governance of the joint venture companies and the skills of the commercial development partners (DfT 2011).

- Partnership with the Central Government

Originally, HS1 was planned to be privately financed, owned, and operated, yet there was significant doubt about the project’s financial viability. Consequently, besides the additional cash grant from DfT, LCR was also granted property development rights around King’s Cross and Stratford Stations. This arrangement was to continue until the concession contract expired in 2086, at which point the assets would return to the government (Omega Centre 2008; Butcher 2011; U.K. Parliament n.d.). Following the sale of HS1, LCR was restructured into a property development entity in 2011. Based on the 1996 arrangement between the government and LCR, DfT expected to receive a 50 percent share of LCR’s net profit after deducting the costs for the King’s Cross development scheme (Comptroller and Auditor General 2005).

Partnership with local communities

According to the section 106 agreements, landowners or developers are required to provide benefits to local communities in exchange for development permissions to offset the impact of development. The local government or developer can appeal to an independent body if such negotiations fail.

The process of development for King’s Cross entailed major engagement based on publication of proposals and active discussions with local people. It led to the development of ten design principles for a human city, as well as the preparation of parameters for regeneration, learning from other examples in London. Those were embedded in a series of design frameworks, guiding the individual parcels and mixed-used grain. There were four rounds of public consultation involving around 30,000 people. The consultation allowed a true balancing of local benefits against profitability for the developer. Both the developer and the government listed and adapted the scheme.

The Section 106 agreement package around King’s Cross includes cash and in-kind contributions to the provision of local infrastructure and community services by the joint developer for the Camden council, including £2.1 million to create 24,000 – 27,000 local jobs through a Construction Training Centre and Skills and Recruitment Centre; 1,900 homes, more than 40 percent of which will be affordable housing; cash and in-kind contributions for community, sports, and leisure facilities; new green public spaces, plus new landscaped squares and well-designed and accessible streets, accounting for about 40 percent of the entire site; a new visitor center, education facilities, and a bridge across the canal to link streets; and cash contributions to improve adjacent streets, transit stops, and bus
Affordable housing is targeted at couples with a combined income below £60,000, and arranged for people with skills needed by the city.

The King’s Cross regeneration program is designed to recapture substantial accessibility and agglomeration benefits through a long-term development-based scheme.

Long-term commitment and flexibility for land value capture

It is crucial that regeneration initiatives are long-term in their perspective if a lasting contribution is to be made. This involves long-term commitment from all stakeholders, including the developer, residents, occupiers and public services.

Early plans to redevelop the King’s Cross area started in early 1990s with the confirmation of the construction of HS1, and a vision was outlined in 1997 by LCR, Camden, and the King’s Cross Partnership (established by the U.K. government to fund regeneration). In the outline planning permission granted in 2006, a target completion date of 2016 was set for the regeneration scheme around King’s Cross. A long-term vision to be implemented by stages was also set (Figure 4).

Under the supervision of the DfT, LCR has been mandated to maximize its long-term asset value, and its development strategy has been to use its major sites as equity to participate in joint-venture development companies that can make long-term profits through urban regeneration around the HS1 stations—chiefly King’s Cross and Stratford.

Figure 4. Long-term Vision for King’s Cross Regeneration Scheme

Source: King’s Cross Regeneration Review 2014;

British Urban Regeneration Association 2002

3 Camden Council 2006.

4 British Urban Regeneration Association 2002
LCR started earning a profit from its core property holdings at King’s Cross in 2013. Local authorities also supported a long-term redevelopment approach by allowing flexibility in the planning permission. The Section 106 agreements for King’s Cross set out very flexible allocations of property floor uses, allowing the joint developers to respond to changes in market and other conditions as the regeneration proceeds. The agreement contains the broad principles of the redevelopment scheme with “floor space maxima” to guarantee diverse site use. Yet these allocation figures allow for some flexibility as redevelopment is likely to take 10-15 years to complete. Thus, floor space of one use could, to a limited extent, be traded against another, depending on market conditions. This flexibility in planning parameters allowed the regeneration to be adjusted to market needs over time.

Financial Impact
Since LCR has been restructured into a property development and management company, a central feature of LCR’s business profile is that returns from LCR’s property interests are expected to be mainly in the form of capital appreciation in the 5-10 year time horizon.

By March 31, 2014, over 57% of the regeneration project by floor area has been either completed or committed. The project continued to make good progress and started to make financial contributions to LCR. LCR recognizes its 36.5% share of KCCLP results, which amounted to £85.1 million for the financial year ended at March 31, 2014. LCR’s share of KCCLP results was a loss of £11.7 million for the financial year to March 31, 2012 and a profit of £78.8 million for the financial year to March 31, 2013. The financial contributions to LCR through King’s Cross redevelopment for the three financial years is shown in Figure 5, and the carrying value of LCR’s investments in KCCLP is shown in Figure 6. The increases in the profit contributions and investment carrying value are predominantly arising from disposal and revaluation of investment properties.

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5 Gossop 2007

6 LCR group report and accounts, March 31, 2014.
Loans were also provided by LCR to KCCLP for the regeneration, which is shown in Figure 7.

**Figure 7. Loans by LCR to KCCLP (in £ million)**

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<thead>
<tr>
<th></th>
<th>AT 31 MARCH 2012</th>
<th>AT 31 MARCH 2013</th>
<th>AT 31 MARCH 2014</th>
</tr>
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<tbody>
<tr>
<td>Loans</td>
<td>50.8</td>
<td>51.1</td>
<td>46.4</td>
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*Source: LCR group reports and accounts*

**Other Impacts**

The regeneration scheme around King’s Cross is expected to directly deliver significant social and economic benefits as well as fundamentally improve the physical environment throughout the construction period and beyond.

The construction program required a large amount of infrastructure to be built before any buildings are begun. This means improvements to local roads, phased opening of some routes through the site, improved drainage and storm water run-off (preventing flooding) and enhanced local electricity capacity.

The length of King’s Cross Central construction period also means that there is the potential for the construction sector to become a long term stable employment base within the local economy.

Ongoing development is transforming the physical environment around what has historically been considered unsafe, underused and vacant land. The applicants are committed to the creation of a high quality public realm maintained by a comprehensive management regime.

The regeneration program is expected to also deliver thousands of new jobs, and a big percentage of them might be taken up by local people with the right employment brokerage and training measures in place. Moreover, the development is expected to also significantly increase Business Rate and Council Tax revenues for the Local Authorities.

The mix of uses and building types in the King’s Cross Central proposals is expected to act as a catalyst for economic clustering and further diversity in industry sectors in North London. In turn, this would generate greater opportunities for training and wider choice of employment.

**Stakeholder contributions and Impacts**

**DfT:** It provided financial assistance as well as development rights to LCR for the construction and operation of HS1 and the regeneration around King’s Cross. In return, it will receive part of LCR’s net profit after deducting the costs for the King’s Cross redevelopment program.

**Local authorities in London:** They were consulted with during the planning of the regeneration program through the King’s Cross Development Forum. The planning permission was granted with flexibility in planning parameters which allowed the plan.
to be adapted to market conditions as the redevelopment proceeded. On the other hand, they also required the partnership developer to provide cash or in-kind contributions to the infrastructure and facilities in the communities in exchange for the planning permission.

*Local communities:* Intense consultation with local communities (over 4000 meetings (ULI)) was made during the planning process which established the framework for the regeneration program to ensure that those living and working close by felt the benefits of the development. Local communities benefit from the Kings’ Cross regeneration scheme employment and training opportunities, housing, health and other community services and facilities, and safer, cleaner streets.
References


DFT (2011). The Department for Transport Land Strategy


This note was prepared by Gerald Ollivier and Wei Wenting, drawing on the book “Financing Transit-Oriented Development with Land Values”, and benefited from the valuable review and comments by Peter Bishop, former Chief Planner at the City of London Urban Planning Authority and by David Partridge, from Argent LLP.
Hong Kong Rail Plus Property Program

Relevance to China Railway Sector

The Rail + Property (R+P) program applied by the Mass Transit Rail (MTR) Corporation in Hong Kong has been central to the success of Hong Kong in developing its rail system. The R+P program enabled MTR Corporation to capture real estate income to finance part of the capital and running costs of new railway lines, and to increase transit patronage by facilitating the creation of high-quality, dense and walkable catchment areas around stations.

The R+P approach illustrates the three following concepts:

- Financial sustainability approach. The value for a rail company of only undertaking rail investments that can achieve a targeted rate of return after factoring government support, in the form of land rights provided at before-rail price, used in a R+P program, or cash subsidies.
- Market driven approach. The need to plan development along each rail line comprehensively, with multiple stakeholders and partners, and to define the scale and timing of such developments based on market demand, location characteristics and institutional capacity.
- Risk management approach. The value for a railway company to bring in relevant expertise and transfer a large part of commercial risks to private developers through public-private partnerships and transactions with external partnerships.

The approach has relevance for China Railway Corporation (CRC) and to cities in China, considering recent State Council Directives (2012[64], 2014[37]) encouraging the integrated development of areas around stations. Its applications in China would warrant a number of adjustments to reflect the legal and planning framework for land management, institutional responsibilities of cities, CRC or urban rail companies.

Impact Summary

From 2000 to 2012, property development produced 38 percent of MTR Corporation’s income, related businesses (such as commercial and property lease and management business) 28 percent, and transit operations 34 percent.

The R+P approach has increased the passenger number and revenue from transit operations for MTR Corporation. Due to the
high ridership, MTR Corporation generated an operating profit of HK$6.717 billion from its transport operations and achieved farebox recovery of 180 percent for 2013. The R+P approach has helped MTR Corporation to achieve the following: between 2004 and 2013, the total equity attributable to equity shareholders grew from HK$ 63.5 billion to HK$152.6 billion; net debt-to-equity ratio decreased from 47.4 to 11.8; interest coverage improved from 6.1 times to 11.5 times; total number of passengers grew from 842 million to 1,824 million, with transit revenue growing from HK$3.6 billion to HK$ 6.7 billion, partially as a result of good rail + property integration.

Motivation

Just like many other metro projects, MTR line construction in the 1970s and 1980s was capital intensive and required substantial funding. With several lines under construction/planning, MTR Corporation had accumulated substantial debt by 1985 (HK$18.7 billion). It was important for the government to cover and even cut some of the company’s project costs without raising fares by arranging government land grants for rail and property development.

Since it became publically traded, MTR Corporation also needs to ensure it undertakes only financially viable projects, as a profit oriented organization undertaking non-government projects. The R+P program helps MTR Corporation meet this objective.

CRC could take a similar R+P approach to generate cash flow by developing land it controls around rail stations in line with the State Council Directives (2012[64], 2014[37]) which provide strong policy support.

Experience

MTR Corporation was established in 1975 as a government-owned enterprise to build, operate, and maintain a mass transit railway system for Hong Kong’s public transport needs. In 2000, about 23 percent of its shares were offered to private investors on the Hong Kong Stock Exchange.

Due to the public-private nature of its railway and related businesses, the interests of MTR Corporation and its subsidiaries may conflict with those of the government on, for example, railway construction or public land grants and leases. For this reason, the Hong Kong Stock Exchange granted the company a special waiver not to be strictly in compliance with the rules applicable to commercial entities for those transactions involving the government (MTR Corporation 2007).

The management of the Corporation is overseen by a chief executive officer and an executive committee. They report to a Board headed by a non-executive chairman and

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2 There is a sharp increase in passenger volume in 2008 due to the rail merger between MTR Corporation and Kowloon-Canton Railway Corporation (KCRC).
made up of local business and community leaders and government representatives.

The government of Hong Kong can appoint the chairman of MTR Corporation with the majority of the votes, while the chief executive of Hong Kong may appoint and remove additional directors of the company under the MTR Ordinance (MTR Corporation 2007).

The portfolio of MTR Corporation is divided into 4 parts, Hong Kong Transport Operations, Hong Kong Station Commercial Businesses, Hong Kong Property and other Businesses, and Mainland of China and International Business.

For Hong Kong Transport Operations, the merged 218.2-kilometer rail network consists of 9 railway lines with 84 stations serving Hong Kong Island, Kowloon, and the New Territories, as well as a Light Rail network with 68 stops serving the local communities of Tuen Mun and Yuen Long in the New Territories. The Corporation also operates the Airport Express, a dedicated high-speed link connecting Hong Kong International Airport and the city’s major exhibition and conference center, AsiaWorld-Expo. The rail system has an average weekday patronage of nearly 5.3 million passengers.

With the R+P approach, MTR Corporation has been able to fund a large part of its transport system development by: (i) creating land value through integrated urban and transport planning; and (ii) capturing such value by receiving land development rights from the government at “before rail” market prices and co-developing such land with private developers at “after-rail”
market prices (Figure 1).

The R+P approach went through different phases. Over the period of 1980 to 2005, property development contributed substantially for expansions of the rail lines, in particular during 1998 to 2005 (Figure 2).

By 2013, MTR Corporation had 51 stations with properties developed/under development, covering around 13 million square meter of gross floor area; the Corporation has completed developments at 33 MTR stations, generating some 94,000 housing units and more than 2 million square meters of commercial space. Furthermore, at the end of 2013, through the day-to-day management of some 90,523 units of residential flats, 13 shopping malls and 5 office buildings, the corporation was one of the largest property managers in Hong Kong.

Industry Structure & Institutional/Regulatory Framework

Initially, MTR Corporation was one of the two rail agencies that served the city. The other was the Kowloon-Canton Railway Corporation (KCRC), which was fully owned by the government of Hong Kong, China. In December 2007, MTR Corporation began to operate KCRC’s railway system under a concession agreement with the government, generally called the “Rail Merger”.

The relevant institutional and regulatory framework concerning the R+P approach includes:

Urban Planning System

The statutory planning system in Hong Kong, China, is mainly concerned with two types of detailed plans: outline zoning plans and development permission area plans, as a temporary measure for certain non-urban areas. Both types are prepared by the Planning Department and presented to the Town Planning Board for approval.

In addition, the Town Planning Board can introduce Comprehensive Development Area (CDA) zones when it wants to encourage a comprehensive approach to the urban design and development of an area, typically involving multiple land parcels and property owners, and including public open space and local community facilities. They are applied, for example, to mixed-use property developments around many MTR stations.

The Planning Department has created the Hong Kong Planning Standards and Guidelines to ensure that land use will facilitate social and economic development and provide public facilities. They stipulate measures relating to, for instance, residential densities, community facilities, recreational facilities, open and green space, temporary measure for certain non-urban areas. Both types are prepared by the Planning Department and presented to the Town Planning Board for approval.

For detailed information about CDA, please refer to: http://www.legco.gov.hk/yr00-01/chinese/panels/plw/papers/plw0426cb1-1508-2c.pdf

industrial land, retail facilities, utility services, internal transport facilities, environmental planning, conservation, and urban design guidelines. A range of Floor Area Ratio (FAR) guides development density in public and private residential areas.

**Land Administration System**

*The government of Hong Kong* is responsible for the management, use, and development of land and for its lease or grant to individuals, legal persons, or organizations for use or development. Efficient land use and development are required given the high scarcity of land in Hong Kong. Such scarcity plays a major role in keeping land valuable.

The Lands Department is in a strong negotiating position in land transactions and related development activities across all territories. The department auctions off or tenders out public land to private developers. Developers, in turn, bid to lease land so as to obtain the right to develop and sell to end-users. However, the highest bidder is not guaranteed the lease; developers must comply with the conditions of sale before acquiring the right to develop (such as lease term; permitted uses; maximum building heights; minimum and maximum gross floor area; maximum permitted site coverage; and master layout plan requirements).

In accord with current *land administrative law*, land parcels are generally leased for 50 years at a premium and subject to an annual rent payment equivalent to 3 percent of the ratable value of the property starting from the date of the land grant, adjusted in step with any changes in the ratable value. Leases not containing a right of renewal are extended for 50 years without payment of an additional premium, though an annual rent remains charged from the date of extension. When land that is not efficiently used is needed for public purposes, the government of Hong Kong may opt not to renew such lease.

**Mechanism**

The basic mechanism for R+P program is through public-private partnerships and transactions.

**Procedures of the R+P Program**

The R+P and property development are considered on a line by line basis, considering market conditions, financing gap for the line construction and future operation and government requirements.

The Transport and Housing Bureau issues and updates on a regular basis a railway development strategy, with the practical advice of MTR Corporation, and of the Town Planning Board.

The Chief Executive in the Executive Council of HKSAR then requests MTR Corporation to proceed with the preliminary planning and

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design of the line. This includes negotiations on the detailed scope, cost and implementation program for the line, and the identification of sites to be reserved for development, subject to rezoning approval. MTR Corporation determines the financing gap for the line, and this gap is reviewed independently.

Once a decision is made to move forward with a specific line and R+P proposal and all parties are in agreement, the government of Hong Kong grants MTR Corporation exclusive development rights for specific sites, defining tower locations, permissible uses, and plot-ratio densities (i.e., floor space divided by land area). This includes land above and around new stations and depots transferred at the “before-rail” market price.

The Town Planning Department initially prepares a rough land use pattern associated with the land grant. MTR Corporation then prepares a master layout of the project, including the siting and massing of buildings, block designs, standards for building quality, and locations of vehicle access points. It also obtains necessary statutory planning approvals for the proposed development.

Next, MTR Corporation issues a tender among potential developers and selects a partner based on the attractiveness of competing financial offers, experience, management capabilities, and other factors. Developers are given some flexibility to recommend and negotiate site modifications of the R+P proposals. MTR Corporation uses its development rights to partner with developers (selected from a list of qualified bidders) based on the “after-rail” market price. MTR Corporation does not sell development rights to other private developers but instead partners with shareholders, yielding a 11% to 12.5% return. The WACC fluctuates based on loan rates charged by commercial banks. For riskier projects, the WACC might be set at 10% plus a 3% premium, yielding a 13% net return. MTR Corporation will invest in railway projects if these net rates of return (11% to 13%, depending on risks) are attained. This “WACC + premium” formula is used to guide not only railway investment but also MTRC’s own real-estate investment, including shopping malls attached to stations.

Financial Sustainability Approach

As a profit oriented organization, MTR Corporation needs to ensure that a suitable rate of return can be achieved, prior to undertaking any investment.

*By embedding a careful upfront analysis in the original R+P proposal, MTR Corporation can ensure that the investment will not affect its overall financial sustainability.*

Financial viability is estimated based on the 50 year net present value for the new construction, discounted with a weighted average cost of capital of MTR plus 1 to 3 percent, depending on the risk level.
The government discusses the appropriateness of providing capital grants or property development rights to MTR Corporation based on the expected funding gap of new rail construction (in the case of natural extensions) that could not be recovered through future operating revenues. Such gap is estimated by MTR Corporation and external assessors. Those assessors include independent checking consultants, who review the cost and revenue of the proposed rail line, and surveying firms who review property valuation for land development, based on Valuation Standards on Properties published the Hong Kong Institute of Surveyors.  

To safeguard the public interest from granting too much land, any excessive capital grant will be reimbursed to the government with interest (claw-back mechanism) (HKSAR legislative Council 2009).

**Market Driven Approach**

In the R+P model, MTR Corporation is the “master planner and designer” to align the interests of multiple stakeholders in different project phases. It prepares a development layout plan, resolves all interfaces with rail stations, takes care of tendering land parcels, acts as a liaison between the government and developers, monitors development quality and the sale or lease of completed properties, and manages properties after completion.

Within MTR Corporation, managers weigh factors like the value of land, density potential, and project size and scale in deciding whether to advance a specific R+P proposal. The assembly of land to be developed around the station is largely

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7 When a new rail project with property development rights is financially nonviable, the government considers providing capital grants.

determined by market demand, constrained by zoning regulations. Commercial property development has occurred mostly at and near central city MTR stations while residential projects have been built mainly in outlying areas and at terminal stations.

While many properties are high-rise towers above MTR station podiums, the R+P model is not a “cookie-cutter” approach to making the cityscape transit supportive. Indeed, the development parameters of R+P (such as area size, building densities, floor uses, and site designs) vary from place to place, essentially depending on the city’s urban planning and market demands. Floor Area Ratios (FARs) of at least 4.0 (as observed in recent MTR Corporation projects) are generally viewed as necessary if R+P is to be financially viable; however, MTR Corporation’s actual site coordination remains flexible by covering large R+P sites with the CDA zone.

The design principles of R+P have evolved over the past 35 years (Figure 3). Since the late 1990s, development has integrated transit-oriented development design concepts—high-density, mixed-use, and pedestrian-friendly—in a more physically comprehensive manner than seen in the 1980s.

The evolution of the physical typology and R+P practices highlights how MTR Corporation’s objective of R+P program has shifted from supplemental finance on small and simple towers in limited land plots toward sustainable finance and urbanism with large and complex packages.

Risk Management Approach

MTR Corporation’s approach to property development is based on minimizing direct risks in property development projects, reducing the company’s exposure to the real estate market and its related risks. For their part, developers must cover all development costs (such as Government land premiums based on post rail value, construction and enabling work costs, marketing and sales expenses, professional fees, finance charges, and others) and cope with all project risks. MTR Corporation negotiates with developers to derive benefits from the property developments through sharing profits in agreed proportions from the sale or lease of the properties (after deducting development costs), sharing assets in kind, or receiving upfront payments from the developers, taken case by case. The selection of one of those three mechanisms is directly related to the evaluation of market conditions and the considerations regarding the long term value of a given development. For private developers, the rules of the game are very clear at the outset, which eases uncertainties.

One of the effective ways for MTR Corporation to both manage risks and address the diverse market needs has been made available through the R+P program creating an incentive for developers to pay a premium.

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9 Studies show that R+P approach yields significant price premiums relative to fairly comparable non-R+P housing projects, especially by reaping the accessibility benefits through the rail transit, which spur the developers to get involved. In Hong Kong, the best locations for development near stations are usually...
to associate several developers to each station area (11 to 13 developers in recent cases).

**Financial Impact**

Profits from property development and related business of MTR Corporation, including HK station commercial business and HK property rental and management business, have accounted for more than 50% of MTRC’s total profit between 2000 and 2013. Besides, due to the expanding rail network with funding support from property development, as well as the ridership bonus brought by community development around the stations, the profits from rail operations have also seen a fast increase. The profit contributions for MTR Corporation are shown in Figure 4.

The accumulated earnings and value brought by R+P model have increased MTR Corporation’s return for shareholders, and

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10 We summarized the financial data about profit contributions from 2000 when MTR Corporation got partially privatized on Hong Kong Stock Exchange.
the balance sheet value of equity attributable to shareholders has been steadily increased during the last decade (2004-2013) (figure 5). Besides, the corporation’s debt servicing capability has also been improved with reduced debt ratio (Figure 6).

**Other Impacts**

MTR Corporation has also seen higher passenger volume as a result of the high-quality communities developed around the stations through the R+P program. Growth of the total passenger number for the last decade (2004-2013) is shown in Figure 7.  

**Stakeholder Contributions and Impacts**

*The Government of Hong Kong:*

Before the Rail Merger of 2007, the Legislative Council Panel on Transport formed a subcommittee to oversee matters on integrated railways. One of the most important issues is whether the proposed funding arrangements for new railway projects are appropriate and whether passengers can enjoy a reasonably priced and efficient transit service. The subcommittee has examined forms of funding for railway construction projects in detail.

The R+P model enabled the government of Hong Kong to build a modern railway network with limited cash subsidy. Besides, the financial benefits of R+P Program are distributed to the government through dividends and appreciation of the value of its shareholding. From 1980 to 2005, the government received an estimated HK$140 billion in net financial returns (nominal value). This is based on the difference between earned income (HK$171.8 billion from land premiums, market capitalization, shareholder cash dividends, and initial public offer proceeds) and the value of injected equity capital (HK$32.2 billion).

*Local communities:*

MTR Corporation also contributes to sustainable urban development and economic development by providing efficient transit services with affordable fares, high quality modern property development and quality retail business and facilities close to the housing area.

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11 The sharp increase of passenger number in 2008 is due to the rail merger in December 2007.
References


Suning REIT

Relevance to the Chinese Railway Sector

The Suning REIT case illustrates the following three concepts:

- Asset securitization through Real Estate Investment Trusts (REITs) is an effective way for a company to transform from a heavy asset company to a light asset one.
- An efficient capital operation platform through continuous REITs management can improve capital raising efficiency and financial results.
- Cooperation with professional financial institutions is key to minimize risk and maximize profits.

China Railway Corporation (CRC) may consider such measures to revitalize its assets.

Impact summary

Under the REITs model, Suning was able to recoup cash and alleviate its land inventory pressure by selling and renting back eleven stores. The deal brought around RMB two billion yuan of income after taxes in 2014 without interrupting Suning’s ordinary operations—a bright spot in 2014 for Suning Appliance.

Thus, by cooperating with CITIC Securities, Suning was able to convert its land reserve and properties to more liquid assets, revitalize its cash reserve and reduce the risk of land depreciation. This also allows outside investors to share the revenue of Suning.

Suning was transformed from a general merchandise store (GMS) to a new model through REITs. REITs also provided financial support for Suning’s strategy to integrate its store-based and online businesses, which allowed Suning to allocate more resources for online business development and transform from a “heavy asset” company to a “light asset” one.

In 2014, when Suning carried out the REIT transactions for part of its store properties, it realized an 1546 percent increase compared to 2013 in its non-operating revenue.

Motivation

Financial Pressure. From 2010, in order to prepare for its online sales, Suning Appliance increased its number of stores through renting and cooperation. This put Suning under heavy financial pressure while it was expanding its distribution channels. Cash flow from operations decreased while investment cash outflow increased. Fixed asset depreciation also kept increasing.

Figure 1. Sources & Uses of Cash

Source: Suning Annual Report
Financing activities couldn’t provide enough cash flow for investment needs. All these influenced Suning’s financial status.

**Asset Impairment Loss.** The company’s asset impairment loss was getting more complicated to manage. The unstable macro-economic conditions in China create a huge threat for a company to realize stable financial performance. The size of Suning’s asset impairment loss is shown in Figure 2.

*Figure 2. Asset Impairment*

Holding many properties helps Suning to stabilize its operation while enhancing its risk-resisting abilities. However, the large scale of sunk assets had become a bottleneck for Suning’s sustainable development. Therefore, such heavy assets (properties) had to be revitalized, that is, to obtain cash for new market development and operations without raising capital through equity and debts. This is called “transformation into light assets”.

**Strategic Transition.** Suning is now following e-commerce strategy and has expended great efforts to attract talent with competitive compensation, benchmarking against internet services companies. In 2014, the staff costs increased by about RMB 1 billion (US$ 170 million) compared to 2013. Moreover, facing intense industrial competition, Suning’s advertising expenses in 2014 increased some RMB 450 million (US$ 75 million) over 2013. These two costs together are the main reason why Suning had a loss in 2014 of RMB 1.46. The expenses on human capital and advertising are substantial, and new businesses with high profit margins, such as logistics, finance and open platform, are still at the development stage. Therefore, it is not surprising that Suning realized a loss in recent years. Suning had to resort to innovative capital operations, such as assets securitization through REITs, to revitalize its assets, and use the cash flow generated for developing its e-commerce business.

**Benefits of REITs.** REITs had many benefits for Suning:

- REITs were more profitable than most of other capital market products in terms of long term investment returns.
- REITs have a different risk profile than other assets. Therefore it was considered as a tool for risk mitigation and profile diversification in portfolio management.
- Most of REITs’ returns come from rents, which are highly adjustable. Therefore it is able to adjust to rising CPI.
- Due to the requirement for high bonuses and constraints on buying/selling assets, REITs are similar to fixed-income securities. Returns on REITs do not fluctuate sharply and can provide investors with stable returns.
Experience

Suning is a large Chinese retailer with more than 1600 stores (Figure 3). For its online sales, Suning ranked No. 3 in the domestic business to customer (B2C) market. In July 2007, the company initiated its IPO in mainland China successfully.

Currently Suning has two main business lines, retail and finance. For retail, its revenue was almost RMB 107 billion (US$ 17 billion) in 2014, with a gross profit margin of 14 percent. The financial business was recently established for the payments of the distribution system development.

Between 2012 and 2014, Suning had a shortage of cash with declined cash flow from operations and financing. In 2014, Suning put eleven retail stores into a REIT arrangement. It now pays rental fees for the use of the stores under a stable, long-term leasing contract. The transaction provided one-time cash infusion for Suning, which it used to restructure its retail operations and focus on its strategic reform. Currently, Suning is planning a second REIT program with 14 stores involved. In the first quarter of 2015, it closed 40 stores and opened 15 new ones. It continues investing in talent attraction and advertising.

Industry Structure & Institutional/Regulatory Framework

Retail Shop Leasing Market

The retail shop leasing market includes foreign companies, large domestic real estate developers and many other domestic companies.

- Foreign property companies that have investments in China include RET and DTZ. Unlike domestic real estate developers, foreign companies provide consulting, planning, financing and specialized operations services.
- China has three large domestic real estate developers: Poly Real Estate Group, Fuli, and Hopson.
- Hundreds of relatively small developers, such as Regus and Meitong Investment, provide rental services.

Along with the strategy of urbanization in China, there is an increasing consumption potential in the second or third tier cities. This supports the rent increase in commercial properties in these cities.

Government Policy

In 2010, the Ministry of Finance issued the “Guidance on Investing Real Estate Evaluation (Draft),” which states:

- When evaluating real estate investment by the market approach, assessors...
should set up comparable baseline and detailed indicators for comparison, such as transaction information and date, floor area ratio, acreage, precise location and operating situation. The indicators should be precisely described.

- When evaluating real estate investment by the approach of returns, proper discount rates should be determined. The discount rate should reflect the average returns of property investments in similar areas on the baseline day and specific risks of evaluation target. The discount rate should be matched with the returns in scale, with rent period and rent fee also considered.

The above guidance standardizes the framework on how to evaluate the fair value for real estate investments. In the same year, The Ministry of Housing and Urban-Rural Development (MHURD) announced that Beijing, Shanghai, Guangzhou, and Shenzhen are selected as pilot cities for REIT projects.

In 2014, the China Securities Regulatory Commission (CSRC) issued a “Statement to Promote Innovation of the Securities Investment Industry” in which it explicitly encourages development of innovative fund products and supports qualified institutions to develop publicly offered fund products that cover all categories of assets.

In 2015, the “Guiding opinions of MHURD on Accelerating the Cultivation and Development of the Housing Rental Market” actively promoted REIT pilots. REITs are a type of financial investment product, which can boost the development of the housing rental market and help companies raise capital. Through REITs, private sector capital can be attracted to the rental market, enriching the supply of properties for rent. The MHURD encourages investment in REITs. Cities are encouraged to develop their own REIT pilot projects.

On May 8, 2015, a CRSC spokesperson said that a gap exists between the supply of publicly offered funds and the public need for financial products. The new “Law of the PRC on Securities Investment Funds” and “Several Opinions on Promoting Capital Market Development” give more room for development of the publicly offered fund industry.

In addition, “The Regulations on Asset Securitization of Securities Companies and Fund Management Subsidiaries” provides the following definitions:

- **Prerequisite for Capital Fund Purchase:** Securities backed by assets should be sold to qualified investors and sold to no more than 200 persons. Each transaction must be more than RMB 1 million in value.

- **Measures to Enhance Credibility:** The credibility can be enhanced either from within or outside. Securities issued by the same project can be divided into different categories. Securities of the same type have the same rights and risks.

- **Transaction Channel:** Asset back securities can be listed on stock exchanges, the national system for equity transactions among small and medium size enterprises, securities
Mechanism

Transaction Structure

First, Goldstone Investment (Goldstone) created a private fund and Suning purchased the equity of the private fund.

Next, Goldstone signed a stock transfer agreement with Suning on behalf of the private fund under which Goldstone purchased 100 of the equity a project company owned by Suning that contain eleven stores.

The price of the eleven stores was negotiated based on independent evaluations by outside experts. For the evaluation of this asset, the major indicators used included market rental rates, rent growth rate, store vacancy rate, net operating revenue and net income discount rate.

Goldstone issued loans to the project company (including senior debt and subordinated debt). The project company used the assets (the eleven stores) to provide a warranty for bank loans. The financial product acquires the properties with non-publicly raised fund. The senior debt offers 70 percent leverage for the subordinated debt, while the subordinated debt provides 30 percent safety warranty for the senior debt. When the purchase is complete, the fund is responsible for asset management and operation to get rent income and property appreciations (Figure 4).

Information about the securities is shown in Table 1.
Equity Arrangement. After selling the eleven stores to the fund, Suning could buy a portion of the fund to indirectly control its stores.

Preemptive Rights. Under the agreement for preemptive rights signed between Suning and the REIT project manager, Suning Appliance must pay for preemptive rights within three years of setting up the REIT (Figure 5). Then Suning has the preemptive right to purchase the store properties owned by the Class B debentures of the REIT.

Rents. Suning leases back use of the stores for twelve years with a stable market rent. The price for renting back these assets will be determined by the market price of similar assets in the neighboring area. The rent will increase gradually for the first 6 years, with a 3 percent increase every year. From year 7 to year 12, the rent will be negotiated based on the market condition, but should be no less than the rent of the first year.

Risk Management

Investment Risk. There are three types of investment risks for REITs: capital market risk, interest risk and liquidity risk. (See
But due to the complex market situation in China, the three types of risks can’t be quantified in one specific project. The project manager has to pay close attention to the macro economic conditions and the policies. This is also why it is necessary to involve a competent and skilled financial institution.

**Cash Flow Risks.** The project manages cash flow risks by setting two levels of security.

1. **Capital market risk**
   - Risk caused by price change of REITs in stock exchange
   - Due to regulation and laws, REITs in China only sold to private investors which make them less transparent.

2. **Interest risk**
   - Price of REITs change when interest rate changes
   - China is transforming its economy which make interest unstable.

3. **Liquidity risk**
   - Liquidity risk arises when investors are unable to sell their REITs.
   - As REITs are new in China, they are less attract to investors & difficult to sell

Cash flow generated from the project will be distributed as follow:

1. Paying taxes (if any);
2. Covering the costs incurred by the project;
3. Returns and principal of the Class A securities;
4. Expenses of the private fund;
5. Returns of the Class B securities;

Class B securities take more risks with higher risk premiums, thus maximizing project returns while reducing cash flow risks for the project.

**Return Risk.** Class B securities have the preemptive option, which essentially is a financial guarantee for B class securities.

According to the agreement, the price of preemptive option is 29 percent per year of the size of Class B securities, of which 7–9.5 percent per year should be paid in that year, while the rest 19.5–22 percent) for that year is accrued.

Three years after the project was created, when there are stock assets in Class B securities, then the cash raised can be invested to the transformation of Suning’s stores, construction of its logistics system and maintaining its brand image.

Within the duration of asset-backed securities, if Suning gives up the preemptive right, it needs to pay 87 percent of the total value of Class B securities. This is actually a measure to increase its credibility. In other words, if Suning gives up the preemptive rights, then it needs to pay around RMB
1.984 billion (US $331 million). Given the high costs, it is unlikely for Suning to quit.

The practice of sale-and-lease-back of assets is well done by business operations overseas. On one hand, returns can be gained from the appreciation of good quality stores and there will be cash inflow; meanwhile, the firms can still control the stores just by paying steady rent, and their operations will not be affected. On the other hand, most of properties involved in REITs are held for long term rather than speculation, and the investment returns come from steady rent revenue. In this way, this also leads to long-term price stability.

**Exit Arrangements**

The project was planned to be listed in the Shenzhen Stock Exchange in late 2014. Then in three years, it aims to go public by listing the REITs. Class B securities can be bought back by Suning or go public (Figure 7).

**Long Term Vision**

Several stages are planned for the development of Suning REITs capital operation (Figure 8).

**Role of Goldstone Investment Fund**

Goldstone Investment Fund was founded in 2013 in Tianjin. It is a solely-owned subsidiary of Goldstone Investment Limited, which is the solely owned by CITIC Securities. Its role is to raise third-party capital to for further investments.
Goldstone is the asset manager of this deal and responsible for investor promotion, transaction arrangement and implementation, as well as project management.

**Financial impact**

Suning’s Financial Situation improved by entering into the REIT transaction. Suning has a total revenue of RMB 109 billion yuan (US$ 1.8 billion) in 2014, an increase of 3.6 percent as compared to 2013. Its profit and the net profit attributable to shareholders was RMB 946 million (US$ 151 million) and RMB 861 million (US$ 143 million) respectively, with an annual increase of 55.5 percent and 131 percent respectively.

In 2014, the REITs transaction provided around RMB two billion (US$ 328 million) in non-operating revenue. In the report of third quarter of 2014, Suning estimated a net loss of around RMB 1.041 billion yuan (US$ 173 million) for 2014. However, the asset securitization through REITs helped Suning to turn the prospect of loss into profitability.

The financial performance of Suning between 2012 and 2014 is shown in Figure 9.

Because of the beneficial influence of REITs to its financial situation, Suning has taken further efforts to take advantage of such capital operation. On May 19 2015, Suning declared that it is planning to sell its 14 stores to Goldstone by no less than $500 million to initiate another REIT.

**Other impacts**

Suning accelerated its move to adjust its store layout, shutting down or adjusting less profitable stores while opening new stores.

Based on the Q1 2015 report, in mainland land China, it launched another 15 stores, one supermarket store and two honghaizi stores. During the same period, it shut down/adjusted 40 stores. By March 31, 2015, for foreign markets, it has 28 stores in Hong Kong and Macau and 18 stores in Japan.

**Stakeholder contributions and impacts**

**Goldstone.** The project enlarged its scale of asset management. As a fund manager, Goldstone did not put in any capital and this project is not included in its balance sheet. Hence, there are no major changes of its balance sheet caused by this project.

**Institutional Investors.** According to the most recent data, the return rate for Class A securities is 6.17 percent, and 8.5 percent for Class B securities. Both have steady cash flows. After the distribution of returns in Q1 2015, a surplus still exists.
Reference

CITIC (2014). CITIC and Suning investors introduction files and confidential files.

RailTel Corporation of India Ltd.

Relevance to China Railway Sector

This case study of RailTel illustrates how the Indian Railways profitably commercialized its telecom assets and rights-of-way by creating a separate subsidiary entity. RailTel has become a pre-eminent example of sharing of infrastructure between the railways and telecommunications sector. RailTel not only delivers high quality telecommunications services to a large number of other users, but also partly manages Indian Railways’ own telecommunications needs.

This case is relevant to China because it shows that a state-owned railway can set up a viable separate entity that commercializes and operates the railway rights-of-way and existing telecommunications infrastructure. This creates additional revenues for the railways while allowing professional management of these assets. The reliable network also supports and improves national telecommunications.

Impact Summary

The approach enabled Indian Railways (IR) to realize the inherent value of the railway’s right-of-way, telecommunications assets, and—importantly—the strong technical expertise and management capacity of the IR staff.

RailTel was profitable in the seventh year of its operations. In its 2013-14 financial year, it declared total gross revenues of US$90 million (all US$ values approx.) with a net profit of US$23 million. RailTel also pays annual dividends to its government shareholder.

Motivation

When the Government of India opened up long distance telecommunications services to the private sector, Indian Railways saw the opportunity to sell the unneeded capacity on its telecommunications network and use the proceeds to expand its fiber optic network.

Experience

RailTel is a wholly owned subsidiary of Indian Railways, which in turn is wholly owned by the Government of India through the Ministry of Railways. Indian Railways has over 65,000 route-km of track, which is one of the largest railway track networks in the world.

In the early 1970s, Indian Railways began deploying its own internal communications systems to increase circuit efficiency on its rail lines. It used overhead telephone lines, quad cables, microwave systems and other available technologies. Prior to that time, Indian Railways was reliant entirely on the Department of Telecommunications, then the state-owned monopoly provider of telecommunications, for its internal communications needs.

In 1983, to increase safety, reliability, availability and serviceability, the Railway Reforms Committee decided to install a
dedicated fiber optic network for Indian Railways, replacing its existing communications systems. In 1988, Indian Railways commissioned its first fiber optic network in Mumbai. The network comprised 60 route-km across 28 stations and was used for train operation and control.

The expansion of the Indian Railways fiber optic network was slow, growing to only approximately 4,000 route-km over the next decade. Indian Railways was only using a small portion of the available capacity, but was unable to commercialize its excess capacity under the then-current regulatory and policy environment.

As part of the New Telecom Policy of 1999, the Government of India opened up national long distance services to private operators, introducing competition in the market. To support this new competitive environment, cross-sector infrastructure sharing by public utilities was encouraged. This allowed the use of existing backbone networks of public and private power transmission companies, the IR, oil and gas companies for national long distance data communication and national long distance voice communications.¹

Motivated by this policy change, Indian Railways decided to form a separate entity to market and exploit remaining capacity on its fiber optic network, generate additional revenues and use these to further expand the network. This split would permit Indian Railways to maintain its focus on its core activity of rail operations.

In September 2000, RailTel was formed as a public sector undertaking with a mandate to modernize the Indian Railways communications network and to significantly contribute to the realization of the goals and objectives of the New Telecom Policy, 1999. RailTel was established as a commercial organization, independent from Indian Railways.

Industry Structure & Institutional/Regulatory Framework

India’s telecommunications market is fully competitive across all market segments (international and national connectivity, fixed and mobile networks) and is dominated by private firms. There are a total of 979 million telephone subscriptions across the country, and 95 million broadband subscribers. The state-owned incumbents currently have about 9 percent of the market for telephone subscriptions.²

Driven by strong adoption of data consumption on handheld devices, the total mobile services market revenue in India reached US$7.5 billion in 2014.³ India is also projected to have 213 million mobile internet users by June 2015, a 23 per cent rise over a six month period, according to the Mobile Internet in India 2014 report. The broadband services user-base in India is

³ GSMA Intelligence, India Market Report (April 2015).
expected to grow to 250 million connections by 2017, according to the UK-based GSM Association (GSMA).

The Indian telecom sector is expected to create four million direct and indirect jobs over the next 5 years on the back of the government’s efforts to increase penetration in rural areas along with the growth in the smartphone numbers and internet usage, according to estimates by Randstad India.

The policy and regulatory regime in India has been evolving since the liberalization of the sector in 1992. Since then, various markets have been opened to private and foreign investment. At present, telecommunications has attracted foreign direct investment worth US$96 billion since 1994.

While no government entity regulates cross-sector infrastructure sharing per se, the Telecom Regulatory Authority of India (TRAI) is the regulator of telecom service providers in India. The TRAI sets ceilings on the tariffs that can be charged for leased line services. However, as of April 2015, RailTel claims that its tariffs have high discount structures and therefore are effectively freely negotiated in the market. RailTel’s pricing is not otherwise directly regulated, however its telecom operator customers have aspects of their pricing to customers and other operators regulated, and this regulation has an impact on how RailTel must price its services to these customers.

The Department of Telecommunications, under the Department of Communications & Information Technology, is responsible for granting telecom licenses. RailTel is an Infrastructure Provider Category 2, which allows it to provide passive assets for telecom use such as dark fiber, rights of way, duct space and towers. No license is required, but registration with the Department is mandatory. RailTel now also holds a National Long Distance license, for its provision of leased line, voice transit and virtual private network services, and an Internet Service Provider (Class-A) license, for its provision of internet services across India.

As a wholly state-owned entity, RailTel is subject to procurement policies and falls under the jurisdiction of the Central Vigilance Commission, a government body established to prevent corruption in government institutions and public administration. A Telecommunications Dispute Settlement and Appellate Tribunal has been established to adjudicate disputes, including those between two or more service providers or between a service provider and a group of consumers.

Indian Railways is a state-owned and Government controlled monopoly with oversight provided by the Ministry of Railways. The Indian Railways Act had to be amended to allow the use of the telecommunications assets of the railway network for commercial purposes; the original Act only permitted these assets to be

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used for internal telecommunications purposes.

RailTel manages the administrative communications of the IR, but at this time, the mission critical aspects of the IR communications are still managed internally.

**Mechanism**

The existing fiber optic network of Indian Railways, then approximately 4,500 route-km, was transferred to RailTel on its formation in 2000. In 2001, RailTel began rolling out of fiber optic cable along national railway routes, laying over 25,000 route-km by 2006 and over 45,000 route-km by April 2015. Another 5,000 route-km are currently being deployed.

Through a contractual arrangement with the Ministry of Railways, RailTel has been able to use the rights of way of Indian Railways along approximately 63,000 route-km of railway track (and passing through 7,000 railway stations across India) to lay fiber optic cable and install other telecom infrastructure. For its last mile and other access networks, RailTel has acquired rights of way directly from local authorities. As of April 2015, its network reached over 4,300 towns and cities across India, including many in remote and rural areas.

RailTel’s fiber optic network consists of armored 24-fiber cables deployed in ducts. Four fibers in each cable are dedicated for use by Indian Railways though they are maintained by RailTel. A centralized network management system in New Delhi manages the network with a backup system in Secunderabad/Kolkata.

In addition to its fiber optic backbone network RailTel has rolled out: an MPLS-IP backbone network with points of presence in 40 cities to provide virtual private network services, broadband internet access and multicast services; a Next Generation Network in 36 cities for carrying voice-based traffic as well as data and value added services; a fiber access network in over 100 major cities in India.

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**The sharing arrangement between RailTel and Indian Railways creates a win-win situation. Indian Railways benefits from professional management of its telecommunications networks, and RailTel can focus on delivering services to its clients.**

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One of RailTel’s objectives is to modernize the telecommunications network of Indian Railways for safer and more efficient train operations. Every station on RailTel’s network has been provided with links to support Indian Railways’ data connectivity needs, including its passenger reservation and ticketing systems. RailTel also provides connectivity among Indian Railways’ field organizations and offices of the Ministry of Railways, among other services.

RailTel obtained an Infrastructure Provider (IP-2) license in 2002 and began offering
wholesale bandwidth services to telecom network operators. This license allows the licensed party to lease / rent out / sell end-to-end bandwidth i.e. digital transmission capacity. The foreign equity of the applicant company should not exceed 74%. There is no entry fee for IP-2 and there is no restriction on the number of licensees. The license is valid for 20 Years from the date of license agreement.

RailTel promoted its services through direct marketing and sales to India’s telecom operators. The initial services utilized by these operators were leased lines and co-location of telecom equipment on its fiber network and its towers. RailTel’s infrastructure was used extensively by all of India’s mobile network operators to roll out their networks. Many of these operators as well as other entities have built competing fiber optic networks along public roads. Yet, these operators often use RailTel’s network to provide redundancy along a separate route.

RailTel has other service offerings including:

- virtual private network services to enterprises, banks education institutions and government entities;
- dedicated Internet bandwidth to enterprises and education institutions; and
- dark fiber leasing to cable television operators;
- data center services (see Figure 1);
- audio/video conferencing services in facilities in major cities;
- Railwire, a retail broadband initiative that utilizes partnerships with local network operators; and
- consultancy services for execution of IT and telecom projects.

As RailTel is ultimately owned by the Government of India, it plays a direct role in furthering the Government’s telecom policy initiatives. For example, RailTel is one of the implementing partners in laying fiber optic cable in furtherance of the National Optical Fiber Network. This project is led by state-owned Bharat Broadband Network Limited. Its goal is to provide connectivity to all the 250,000 Gram panchayat’s (village-level units of local government) utilizing existing fiber optic cable of public utilities, including RailTel, Power Grid and Bharat Sanchar Nigam Limited (the state-owned telecom incumbent).5

5 Bharat Broadband Network Limited, National Optical Fibre Network (NOFN) (2015)
Financial Impact

RailTel’s network roll-out was financed with Indian Rupees (INR) 4 billion (US$66 million in 2015 US$) from a consortium of banks led by the State Bank of India. These loans were repaid in full by January 2013, and today RailTel is debt free. RailTel achieved its first profitable year in 2007, after seven years in operation.

RailTel is financially self-sufficient and does not receive any funding from the Government of India. It finances network expansion from its revenues. Because RailTel is independent from Indian Railways, its sole shareholder, it files its own annual reports in accordance with Indian accounting rules.

In its 2013-14 financial year, RailTel declared total gross revenues of INR 5.38 billion (US$90M) with a net profit of INR 1.38 billion (US$23M). Details on the financial trends for RailTel are in the Figure 2.

RailTel shares a portion of its revenue with Indian Railways as compensation for use of its rights of way. For RailTel’s 2013-14 financial year, this sharing amounted to INR 207 million ($3.5M). This ‘revenue share’ over time is in Figure 3. As Indian Railways utilizes 4 fibers in each 24-fiber cable it bears a proportionate cost of capital expenditures for network deployment. RailTel also pays

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annual dividends to its government shareholder. Between 2005 and 2014, RailTel had paid a total dividend of INR 870 million ($14M in 2015 USD) to its only shareholder, the Government of India.

Other Impacts

RailTel’s cross-sector infrastructure sharing with its parent, Indian Railways, has been widely considered a success. It is a powerful example in India of a public utility successfully commercializing its rights of way for cross-sector infrastructure sharing. RailTel’s extensive fiber network has permitted telecom operators to provide services in large areas of the country that were previously unserved or underserved with limited capital expenditures. Even today, when most major telecom operators rely on their own fiber optic networks buried along public roads, RailTel’s network provides redundancy along a separate route. It has also expanded its service offerings to include a wide range of IT and telecom services for retail and wholesale customers. RailTel has played a significant role in the proliferation of telecommunications services in India, and provides high-quality services to a wide range of customers.

Stakeholder contributions and Impacts

There were two main sets of stakeholders that had an influence on RailTel. The first was the Government, in terms of the railways ministry and the telecommunications ministry. The railways ministry had the vision and understood the benefits of making the change to its corporate structures to create RailTel and to permit the commercial use of these assets, especially to open these assets to the other private users (e.g. telecommunications operators, banks, and other public agencies). This was a slow process, and needed changes to legislation, which implies the commitment of various political and bureaucratic leaders to the vision and the process.

The telecommunications ministry also had a role to play in terms of creating the enabling environment through the licensing regime to allow the creation of infrastructure provider licenses. Yet, the telecommunications ministry also had to be convinced of the need for the railways to create another public agency for telecommunications services, which would compete with its own SOEs.

The second important stakeholders were the users of this telecommunications capacity offered by RailTel. These users include a range of telecommunications networks (including the private mobile and Internet service providers), banking institutions, and government agencies. These users have often chosen RailTel given their perception of its services as highly reliable and managed professionally.
References

This case study includes information provided by RailTel through an interview conducted in March 2015.


GSMA Intelligence, India Market Report (April 2015). This is a subscription service.


Southern Pacific\(^1\) Leveraging Telecom Assets

Relevance to China Railway Sector

This case study of Southern Pacific Railroad (SPR) illustrates how it commercialized its telecom assets and rights-of-way, and later spun-off two separate telecommunications companies. It shows that a railway can use existing assets (e.g. ROW, optical fiber cable and microwave networks) to generate revenues. Moreover, it demonstrates that a major railroad network can benefit from the sale or lease of such assets, and that its and operations would be unaffected by such usage.

\(^1\) Note that Southern Pacific is now owned by Union Pacific Railroad. It is now a “significant subsidiary” of Union Pacific Corporation.

Impact Summary

The SPR case is unique in that its ROW were used and commercialized on two separate occasions. Specifically, two private telecommunications companies were created that used the ROW and telecommunications networks of SPR. The first was Sprint (sold in 1983), and the second was SP Telecom (spun off in 1991, and rebranded as Qwest). Both companies were highly valued in financial terms on their acquisition (Sprint to GTE, for about $1B), and IPO (SP Telecom as Qwest, at about $2.1B).

Motivation

The underlying motivation for SPR to use its telecommunications network for commercial purposes was to capture a revenue opportunity in the (liberalizing) USA long-distance market.

This market was growing as businesses across the USA sought higher-capacity national data connectivity from operators that were competitors to the monopoly AT&T telecommunications system. SPR saw this opportunity as early as 1972 and sought ways to use its then microwave communications network for long-distance telecommunications. The move put a dent in AT&T’s longstanding long-distance monopoly, and addressed the growing demand for data connectivity.

Experience

The Southern Pacific Railroad (SPR) operated its internal telephone system, first using copper based telephony and then, by the 1950s, using microwave radio systems alongside its railway tracks. This technology
enabled dispatchers to communicate directly with the railroad's train engineers.

Recognizing the opportunity to use this network commercially and sell excess and unused capacity to other businesses, SPR set up the Southern Pacific Communications Company (SPCC) in January 1970 to offer public and corporate access using the private network. At the time, the US had a regulated national and international monopoly on telecommunications, which was AT&T. The SPR-SPCC network began operations in December 1973. By July 1974, SPCC was the first non-AT&T company to provide nationwide voice telecommunications by microwave radio.

This move created a major national competitor to AT&T's monopoly, and used the opening of the market by the US federal (national) telecommunications regulator in 1971, ordering AT&T to allow access to its local telephone exchanges and hence end-subscribers by competing service providers. However, a series of continued court cases among AT&T (to protect its monopoly), the FCC, and the competing networks (including SPCC) led to some delays. Finally, a decision by the courts in April 1978 (known as the “Execunet II case”) forced AT&T to accept access by private networks.

Also, in 1978, after a clear decision by the courts in favor of competition, SPR began to build fiber optic cables along its railroad right of way. SPCC saw its customer base grow from 1,000 customers in early 1978, to 30,000 customers by the end of 1979.

**Creation of Sprint**

With this success, SPR rebranded SPCC's services and ultimately the company as Sprint in 1978, and sought to spin off this subsidiary to a third-party, then lease back capacity for the railroad's internal communication needs. By mid-1979, the Sprint network had grown to serve 72 cities, making it the nation's largest specialized communications common carrier.

By 1981, Sprint had 200,000 customers and was handling 60,000 long-distance calls per day, at rates that were 20 to 50 percent lower than those being charged by AT&T.

Finally, SPR sold Sprint to GTE Corporation—the largest non-AT&T telecommunications company—in 1983. GTE paid US$940 (comprised of $740 million cash and $200 million debt). This purchase took place at about the time that GTE was seeking to rollout a national network, given the end of AT&T’s monopoly on the national long-distance telephony market (which ultimately happened in 1984).

**Creation of SP Telecom and Qwest**

After SPR had sold Sprint to GTE, new management of SPR (which was later merged with Union Pacific Railroad) was interested in using the remaining right of way to deploy additional telecommunications infrastructure and commercialize it. In March 1989, SPR created Southern Pacific Telecommunications (SP Telecom) as a new subsidiary company.
The management then took an interesting decision. Recognizing the value of the telecommunications business, one of the directors paid $55 million in September 1991 to separate SP Telecom away from SPR. He also retained full rights of access to the railroad's right of way for the purposes of installing telecommunications infrastructure (eliminating the possibility of future competitors emerging).

In December 1994, SP Telecom acquired another (competing) telecommunications company, Qwest.

Hence, SPR’s original rights of way led to the creation of two (competing) telecommunications networks.

**Industry Structure & Institutional/Regulatory Framework**

The USA is one of the world’s largest information technology and technology markets, with major corporations in software, IT services, telecommunications, and content creation and distribution. It has a number of major innovation hubs, some of long standing and some are now emerging. These are also spatially distributed, with many on the coasts, and some now emerging in the landlocked states. It is also the third largest mobile telecommunications market by subscriber based, behind China and India, but is the largest by revenues, with 2014’s service revenues at US$368 billion. Annual service revenues are show in Figure 2.

The US telecommunications market is *de jure* and *de facto* competitive, although some markets (such as mobile telephony and cable TV) have consolidated at the national level.
with a small number of large operators and many smaller regional or state-level players. There is limited public sector involvement in telecommunications, with no state-owned enterprises in existence, although various government agencies (at the national, state, or municipal levels) have begun to fund or support the deployment of fiber optic and wireless broadband networks in recent years.

The market is also regulated at these three levels, i.e. at the federal (national) level by the FCC, at the state level by “public utility regulatory commissions” (PURCs), and at the local level by municipal agencies. The scope of regulated markets varies: the FCC regulates all wireless communications (including radio and TV broadcasting) and all interstate and international communications; the state PURCs regulated intrastate telecommunications; regulation of cable TV is done by PURCs or municipalities.

A major turning point in the US telecommunications market was in the late 1970s and early 1980s, particularly 1984, when a court-enforced judgment ended the monopoly of AT&T on interstate and international telecommunications (note that local and intrastate telephony was always competitive). This ushered in competition in long-distance and wireless telecommunications. This move permitted the entry of many other private networks into the growing long-distance telephony and later data markets.

**Financial Impact**

In both cases, significant value was derived from operations. In the case of Sprint (and its predecessor SPR Communications Company, SPCC), between 1981 and 1984, its customer base grew from 200,000 to 900,000 customers in 45 states of the USA. By the early-1980s SPCC was profitable, reporting a US$34 million operating profit.

In the case of SP Telecom, which was established in 1988, had annual revenue of more than $50 million, and employed 410 people by 1993.

Longer-term value was derived from M&A and IPO activities. Sprint was acquired by GTE, a large telecommunications company, for almost US$940 million; this was “30x estimated earnings for 1982, and nearly 7x net assets.” SP Telecom (acquired and was rebranded as Qwest), initiated an IPO in June 1997. This gave the company a market capitalization of $2.1 billion.

It is critical to note that these longer-term financial impacts were realized due to the timing of the sales, acquisitions, and IPOs of the Sprint and SP Telecom/Qwest networks. The period until the 1990s saw a fairly quick and consistent increase in the revenues generated by long-distance
telecommunications traffic (see Figure 3). However, since the 2000s, due to the telecommunications-Internet bubble bursting in the USA, and due to the rapid drop in the prices of data and telephone communications (even as volumes have exponentially grown), these markets and these companies might not have yielded these valuations.

However, the short-term impacts, and the underlying value of these networks—both built using ROW attached to railways—and realized by private investment, are clear.

**Other Impacts**

Sprint had a direct role to play in the increasing competition of the US telecommunications market. From the 1970s, as pressure mounted on the FCC and AT&T to deregulate the market, Sprint (and other companies such as MCI) were critical players in the various court cases and regulatory proceedings that led to the ultimate break up of the monopolies that AT&T held. While neither Sprint nor Qwest exist today in their original forms (as they have been re-acquired, merged, rebranded, and reorganized a number of times since), these companies had a key role to play in the development of the US telecommunications market. This underscores the potential game-changing role that strategic use of the ROW held by the railways could play in overall market development.

A mark of the continued value placed on the ROW is that Union Pacific Railroad, which now owns the erstwhile SPR system, continues to offer “railroad rights of way to connect major metropolitan cities and other geographic regions generally west of the Mississippi River.” Union Pacific currently operates over 33,000 miles of rights of way and “maintains a presence in the fiber optic and wireless market place by leveraging assets, including continuation as a provider of rights of way and wireless facilities.” Union Pacific continues to manage its own internal telecommunications.

![Figure 3. Interstate Toll Revenues as a Share of Total Revenues (US$ billions)](image-url)

*Source: Author’s analysis based on FCC data*
References


*SP and Sprint*, retrieved from http://utahrails.net/sp/sprint.php

TeleGeography, GlobalComms database (by subscription), available at www.telegeography.com