



Research Article

ISSN : 0975-7384
CODEN(USA) : JCPRC5

A study on the financing mode for the local railway construction projects on the basis of “ministry-city” collaboration

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ABSTRACT

The paper analysis the problems of China's joint-venture railway financing, and brings forward through the formation of the local railway investment company setting up a local railway construction financing platform under the environment of “Ministry-City” collaboration. Based on the financial perspective, the paper puts forward defining standards and the various characteristics for profitable joint-venture railways, quasi-welfare joint-venture railways and public joint-venture railways. The paper designs different financing mode to match different nature of railway investment projects.

Key words: Railway, Financing, Operating mode, Investment

INTRODUCTION

In 2008, China government readjust the “long-term railway network planning”. The readjusted plan pointed out that the total investment scale of railway construction in China in next 12 years will exceed 500 billion CNY, the mileage of railways will be added more than 4 kilometers. In 2010, the railway investment in fixed assets reached 762.2 billion CNY, the number of passengers transported reached 1676.09 million, the total national railway freight volume (including the parcel traffic volume) reached 3642.71 million tons. The large-scale railway construction has played a tremendous pulling effect on expanding domestic demand, improving the investment environment and promoting rapid economic growth.

As an important form of speeding up railway construction, joint-venture railways made important contributions to mobilizing the enthusiasm of local governments and investors, promoting China's railway investment and financing system reform, easing the contradiction between supply and demand, promoting the coordinated development of regional economy and improving the railway network layout. However, after the accident of Yong Wen line train collision on July 23, 2011, central state decided to reassess the safety of the proposed railway projects and suspend approval of new railway construction projects. That cause railway financing in difficulty. In the current background, China railway construction mostly adopt joint-venture building mode which include central state (Ministry of Railways as the representative) and local governments. Railway construction involves many investors and stakeholders such as Ministry of Railways, local governments, enterprises etc. How to coordinate the development among them, put forward a central-local joint-venture railway financing mode which adapt to economic development, is an important subject that the current joint-venture railways' healthy development should face.

2. Analysis of status and problems of China Railway Financing

2.1 Small equity fund, high financial cost

As can be seen from table 1, with the increasing of railway investment, the proportion of domestic loans increased gradually. The percentage of national investment declined year by year. In 2010, domestic loans accounted for 47.5% of the total railway investment, whereas the state budget funds only account for 14.9% of the total railway investment. Adding to other debt financing, debt asset ratio of enterprises engaging in railway investment projects is more than 70% generally. Because railway projects feature huge investment and long payback period. This kind of

improper capital structure led directly to high financial cost and poor profitability of railway investment projects. In addition, railway asset specificity is high, the liquidity of railway assets is low, the financial risk is great. Investors' further borrowing will be restricted.

Table 1 Statistics of railway investment funds sources

Unit: million CNY

Year	Total	State budget funds (percentage)		Domestic loans (percentage)		Foreign investments (percentage)		Self-raised funds (percentage)		Other funds (percentage)	
2010	7308	1036	14.9%	3470	47.5%	29	0.4%	1801	24.6%	973	13.3%
2009	6512	947	14.5%	2910	44.7%	58	0.9%	1628	25.0%	970	14.9%
2008	4258	768	18.0%	1607	37.7%	48	1.1%	1168	27.4%	667	15.7%
2007	2458	550	22.4%	644	26.2%	26	1.1%	802	32.6%	436	17.7%
2006	1946	588	30.2%	331	17.0%	25	1.3%	711	36.5%	291	15.0%
2005	1288	446	34.6%	334	25.9%	30	2.4%	388	30.1%	90	7.0%

2. 2 Less investors, inappropriate corporate governance structure

As can be seen from table 2, from 2005 to 2010, the central investment made up around 90% of the total railway fixed assets investment. While in 2010, the private investment accounted for only 2.09% of the total railway fixed assets investment, foreign investment represented mere 0.03%. This indicates that China's railway construction has not make full use of social capitals. The main investors are just central state and local governments. Thus, a "Ministry-City" collaborative railway construction mode is formed, which include Ministry of Railways on behalf of the central state and local governments bounded by different provinces. In this collaborative mode, the Ministry of Railways leading forward railway construction plan, implementing construction and operation. Local governments at all levels participate passively. Ministry of Railways is the dominant shareholder. The corporate governance structure of joint-venture railway companies is inappropriate.

Table 2 Statistics of railway fixed assets investment

Unit: million CNY

Year	Amount of investment	Central investment (percentage)		Local investment (percentage)		State-owned investment (percentage)		Private investment (percentage)		Foreign investment (percentage)	
2010	7622	6623	86.89%	999	13.11%	7381	96.84%	159	2.09%	2	0.03%
2009	6661	6059	91.00%	602	9.00%	6540	99.20%	55	0.80%	12	0.20%
2008	4073	3695	90.70%	378	9.30%	4010	99.00%	40	1.00%	8	0.20%
2007	2493	2240	89.80%	253	10.20%	2450	99.20%	19	0.70%	1	0.10%
2006	1967	1766	89.80%	201	10.20%	1918	99.40%	12	0.60%	1	0.00%
2005	1268	1122	88.50%	146	11.50%	1245	99.00%	1	0.00%	0	0.00%

2. 3 The functions of joint-venture railways are unclear, joint-venture railways undertake a large number of public welfare functions.

In the railway construction mode leading by Ministry of Railways, railway construction in China has distinctive characteristics of public welfare. Railway construction has created favorable conditions for other production fields and other economic subjects to generate higher economic benefit. In other words, the spillover of public welfare produces low cost and high benefit of other production fields and other economic subjects. This also lead to part of railway projects are very difficult to get profit. Therefore, railway investment must clearly define the project categories. There should be different between profitable joint-venture railways and public joint-venture railways in investors, financing ways and financing channels. At present, profitable joint-venture railways and public joint-venture railways in China have not been well defined. Ministry of Railways encourage social capital enter into railway construction. At the same time, it use profit from profitable joint-venture railways to make up the loss caused by public joint-venture railways. This approach leads to weak sense of competition and serious loss.

2.4. The railway financing system is not well developed, lacking fair and reasonable market competition mechanism.

In the railway construction of developed countries, normally, there are well developed market regulations and relatively impartial supervision system, which be able to maintain and support all business bodies to operate and get fair return. In China, Ministry of Railways is an administrative department that it makes policy and supervises. Moreover, it guides railway investment and participate in management. Which lead to low competition and transparency of railway investment. Fair competition is hard to fostered. In addition, interest conflict between joint-venture railways and state-owned railway is existed. Ministry of Railways play a partial role that it can't fully guarantee the expected return on investment from social capital. At present, many joint-venture railways companies are in a state of loss. The situation also greatly affect the enthusiasm of local governments and social investors.

3. Establishment of local railway construction platform under “Ministry-City” Collaboration

At present, Ministry of Railways and local governments bounded by different provinces cooperate to construct railways. The joint-venture railways companies are funded by Ministry of Railways, local governments and enterprises. Most of them are controlled with share by Ministry of Railways and participated with share by local governments and enterprises. Ministry of Railways dominates the construction of joint-venture railways. Once they are completed, the railways are managed by local railway bureaus. Ministry of Railways and local governments raise money individually. They adopt all kinds of ways to attract capital. In this circumstance, although the ownership of joint-venture railways belong to Ministry of Railways, local governments and participated enterprises, the railways' operation is controlled by Ministry of Railways. On the other hand, in joint-venture railway companies, the holders' rights are weakening in sequence of “Ministry of Railways -- local governments -- participated enterprises”. It goes against the maintenance of the joint-venture railway companies' operating independence, integrity and autonomy. It also lead to unclearness of property rights and increase of transaction costs. Therefore, in order to promote railway investment and financing system reform, improve professional level of railway project construction and operation management, raise independence of joint-venture railways, protect interests of local investors, local governments should establish local railway investment companies bounded by different provinces as ties which connect Ministry of Railways and local governments. These companies are responsible for railway financing, construction, operation, management and coordination of inter-province and multi-province^[1].

Under “Ministry-city” Collaboration, local railway investment companies represent local governments as platform of railway investment and financing. They participate in railway operation management as well. After a period of development, they could invest and manage diversified businesses besides railway. For example, land development and construction combining with railway construction; taking advantage of railway resource and developing modern logistics industry; conducting development and production of railway traffic equipment and device; guiding financial securities business to solve the problem of financing of railway construction. In a case of Japan, after national railway reform, the first successful privatized company, East Japan Railway Company, proposed a slogan that “focusing on reliable railway service and becoming a comprehensive service institution”. Under this mission, besides railway passenger transportation, its business covers warehousing, tourism, advertising, publishing, hotel, real-estate development, retail, credit card business and so on. These businesses complement core railway businesses, bringing rich investment return and provide solid financial guarantee.

4. Classification of local railway construction projects and design of financing mode

In China, types of investment on railway are diversified and complicated. There should be adopted different method in different railways on financing, programming, construction and management. Hence, before making decision of railway construction financing, we should analyze public welfare and profitability of every project. According to the character of railway construction, designing reasonable financing methods.

4.1 Classification of local railway construction projects

The aims are different among different types of local joint-venture railway construction. This is mainly reflected in the the driving force-public welfare and profit-pursuit. Public welfare is on the basis of public interests by contrasting with private interests or operational interests. So we could divide local joint-venture railways into 3 types: profitable joint-venture railways, quasi-welfare joint-venture railways and public joint-venture railways.

1. profitable joint-venture railways

The income of profitable joint-venture railways can make up its total costs. Their rate of return on investment is generally greater than the social average rate of return on investment. The investors of this railways are mainly enterprises. They need these railways for themselves or these railways are profitable. For example, coal transportation railways in energy rich province, inter-city railways of developed cities and high-speed railways etc.

2. quasi-welfare joint-venture railways

The income of quasi-welfare joint-venture railways can make up its variable costs but the profit is little. Some railways can't make up all fixed costs. This kind of railways have certain public welfare. The size of investment return mainly depends on the region's economic development, investment policy and price policy. The main investors should be central state and local governments. Actively attract other investors to participate in.

3. public joint-venture railways

public joint-venture railways are normally not used in commercial operation. They are featured strong public benefit and social benefit. Sometimes adding to more political consideration. The income of public joint-venture railways are difficult to make up its total costs, let alone profit. This kind of railways need government support to sustain its operation. Generally, the investors are central state and local governments. Railways construction funds mainly come from central investment, local financial investment, Ministry of Railways bond investment, development bank

lending etc.

4.2 Definition of railway construction project investment classification standard

In railway construction, fixed assets investment accounts for a considerable proportion. Therefore, from financial perspective, the definition of fixed cost is a key element of different railways division. According to related finance and tax regulations, the depreciation period of upper building, bridges, railway tunnels, culverts of railway lines is 35-40 years; the depreciation period of railway equipments, signal devices and trains is 8-20 years. Therefore, normally 20 year is a division of railway fixed assets. Before the division, the proportion of fixed asset depreciation is relatively high. After the division, the proportion of fixed asset depreciation will be down.

Based on the financial perspective, we set “p” as the distributed profits to investors, which means that the net profit eliminates features surplus, statutory welfare reserve; we set “I” as the proportion of external investment; we set “S” as the amount of external investment; we set “E” as the social average rate of return on investment. We can define profitable joint-venture railways, quasi-welfare joint-venture railways and public joint-venture railways through Table 3^[2].

Table 3 Definition standard of railway project

Number	Before the division (20 year)	After the division (20 year)	Type	Features
1	$\frac{I}{S} \times p > E$	$\frac{I}{S} \times p > E$	profitable joint-venture railways	The return of investment is always higher than investment cost. The railways are profitable in long terms.
2	$\frac{I}{S} \times p \leq E$	$\frac{I}{S} \times p \geq E$	quasi-welfare joint-venture railways	Before the division, the return of investment is lower than investment cost. After the division, the railways could profit.
3	$\frac{I}{S} \times p < E$	$\frac{I}{S} \times p < E$	public joint-venture railways	The return of investment is far less than investment cost. The railways are in loss in long terms.

4.3 Design of financing mode in different types of railways

1. profitable joint-venture railways

profitable joint-venture railways projects are key field to attract social investment. Social funds should be main investors in these projects. Local railway investment companies could be the financing platform in these projects. Under policy support, governments could attract different investors to participate in investment, construction, operation and management. The operation of profitable joint-venture railways could adopt the mode of integration of construction and operation. In this mode, joint-venture railways companies could manage transportation and run business independently. They could set related professional departments and business units. They could be responsible for transportation business. Local railway bureaus could be responsible for administrative work such as safety supervision and management. The role distribution is helpful to straighten out the relationship among government, enterprise and market. It is helpful to clarify their responsibilities, rights and returns, fully mobilize the enthusiasm of the social investment, promote the leaping development of railway. This kind of railways' financing channels are wide, it also the best way for using social capital. We could raise money in many ways, such as stock issue, foreign investment, bond issue, BOT, TOT, MCC etc.

2. quasi-welfare joint-venture railways

Normally, quasi-welfare joint-venture railways have strong social and economic benefit. In a short time, They can't realize profit and loss balance. Thus, in this kind of railways, Ministry of Railways and local governments are main investors, social funds account for small proportion. Through flexible pricing strategy and moderate compensation, attracting social investors participate in.

The disadvantages of quasi-welfare joint-venture railways are huge investment and long payback period of investment. Social funds in quasi-welfare joint-venture railways face to small proportion, difficult operation and weak anti-risk ability. Hence, in cross-provincial construction of this kind of railways, local governments should be the main investors, central state provide a certain proportion of funding. Besides government financial investment, we could mainly use the municipal debt and railway bonds. We also could try sector fund as a way of financing. More exactly, it is a way of private placement. In this way, we can meet the large-scale railway construction fund demand. We also could guarantee the safety and income stability of social investment effectively. We could promote healthy development of China's capital market as well. In addition, currently domestic insurance capital participate in railway construction investment with high enthusiasm. This kind of investors focus on long-term safety and stability of investment income. They control large-scale capital which suitable for the characteristics of railway construction investment. The national policy also encourage insurance capital invest indirectly on infrastructure and

key project construction.

3. public joint-venture railways

The operation of public joint-venture railways are affected by development of poverty-stricken areas and political-military affairs. Normally, they are non-profitable projects. It is difficult to mobilize the enthusiasm of enterprises and other social capitals to invest on the construction. The operation are unsustainable. Basically the investment can't be recouped. Government should be responsible for investment on this kind of railways. Their operation can be used to integration of construction and operation. Hence, public joint-venture railways can't be built and operated through market. Central state and local governments at all levels should be as the subject of investment. The railways construction funds stem from railway construction fund, central and local fiscal support. Financing mainly adopt to government investment and the State Development Bank policy-related loan.

To sum up, railway financing modes should be matched different nature of railway investment projects. As can be seen in Table 4, we should actively seek diversified investment funds for all kinds of railway construction projects. We also should give social railway investors preferential policies which make them could obtain the corresponding reward. Only in these way can we mobilize social investors participate in railway construction projects^[3].

Table 4 Comparison among different types of railways construction projects in characteristics and financing mode

Number	Types	Characteristics	Main investors	Investment form	Operation form
1	profitable joint-venture railways	The rate of return on investment is generally greater than the social average rate of return on investment. Most of them are competitive lines under market principle.	social capital and government financial support	stock issue, foreign capital, loan, bond issue, BOT, TOT, MCC	separation of construction and operation
2	quasi-welfare joint-venture railways	Featured by certain public welfare. With little profit or in the long-term balance between profit and loss	government financial support and social capital	government fund, municipal loan, railway bond, railway fund	integration of construction and operation, separation of construction and operation
3	public joint-venture railways	With strong public benefit and social benefit. The income are difficult to make up its total costs.	government financial support	railway construction fund, central and local finance, the State Development Bank policy-related loan	integration of construction and operation

CONCLUSION

Railway construction financing innovation is the general trend. Under "Ministry-City" Collaboration, firstly, railway construction should be defined in profit nature, and be implemented in financing, construction and management according to different project nature. For applied to local economic development, land development, national security and other public welfare projects, central state should be the main investor, and the operating losses should be subsidized. For projects with market value, social enterprises participate in railway construction by sole proprietorship or joint-venture; For projects between the former two, can be adopted by part of the government investment and preferential policies to attract social investors.

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