

VICTORIA UNIVERSITY OF WELLINGTON

**GRADUATE SCHOOL OF BUSINESS
AND GOVERNMENT MANAGEMENT**

WORKING PAPER SERIES 14/92

**Railway system in New Zealand:
Case study in strategic change**

R. Y Cavana*

* Management Group
Faculty of Commerce and Administration
Victoria University of Wellington

December 1992

**ISSN 0114 7420
ISBN 0 475 11458-2**

RAILWAY SYSTEM IN NEW ZEALAND: CASE STUDY IN STRATEGIC CHANGE

R.Y.Cavana *

ABSTRACT

The New Zealand railway system has undergone considerable changes over the past decade. Prior to 1 April 1982, the railway system was managed and controlled by the New Zealand Railways Department. This Department was frequently used as an instrument of the Government's social and economic policies, often in direct conflict with its commercial objectives. The New Zealand Railways Corporation was established on 1 April 1982, with a Board of Directors appointed with a wide range of business sector experiences. The major purpose of this restructuring was to allow the Corporation to run its operations on a more commercial basis.

Regulations controlling competition from road transport of freight had been in place since the 1930's. These regulations were progressively released and finally removed in 1983 with the total deregulation of the road transport industry in New Zealand.

The NZ Railways Corporation responded well to the restructured organisational environment and deregulated freight market by making dramatic gains in overall efficiency. However the financial costs of this restructuring were considerable, and by 1989, five years of increased net losses had reduced shareholders equity to 4% of total assets. The Corporation was on the verge of technical bankruptcy. This resulted in substantial restructuring of the NZ Railways Corporation balance sheet in 1990 and the establishment of New Zealand Rail Ltd on 28 October 1990.

By June 1992, New Zealand Rail Ltd had been restored to profitability, showing a net profit of \$36 million, equivalent to a return of 12% on shareholders funds. Staff numbers had been dramatically reduced to 5400, down from 21,600 in 1982.

This paper examines the performance of the railway system in New Zealand from 1982 to 1992, during the period of considerable changes in the regulatory and institutional environment in which it operated. It also discusses the issue of future public or private ownership of the railway system in New Zealand.

Keywords: New Zealand railway system; state sector restructuring; road transport deregulation; corporatisation.

* Management Group, Faculty of Commerce & Administration, Victoria University of Wellington, PO Box 600, Wellington, New Zealand.

An earlier version of this paper was presented at the Australian and New Zealand Academy of Management Conference in Sydney, Australia on 6 - 9 December 1992.

The author gratefully acknowledges the assistance received in the preparation of this paper, particularly from Dr Murray King and Mr Nik Zangouropoulos of NZ Rail Ltd and Dr Reg Mascarenhas of the Faculty of Commerce & Administration, Victoria University of Wellington. However the opinions and interpretations contained within this paper are the author's own.

1. INTRODUCTION

The origins of the railway system in New Zealand date back to December 1863 when a railway link was opened as the first part of the railway connection between the growing settlement of Christchurch and the Port of Lyttleton. Local Governments in various parts of the country continued to develop independent railway lines with differing gauge widths until the introduction of the Immigration and Public Works Act in 1870. This Act established a Government Department responsible for constructing a standardised railway system to open up the country for settlement (South Pacific Merchant Finance Ltd, 1983).

By 1890, the total length of state owned railway lines had reached 903 kilometres (km). In 1894, the New Zealand Government Railways Department was established to take over the role of operating and developing the expanding rail network. Between the 1860's to the 1920's the expansion of the railway network throughout the country played a major role in the economic and social development of New Zealand. By 1920 the total length of open railway track reached 4830 km (Leitch & Stott, 1988).

With the introduction of motor vehicles with internal combustion engines in the 1920's Railways fortunes started taking a dramatic downturn. This led to the introduction of Government legislation protecting certain features of the Railways business in the 1930's, in response to the "unfair" competition from the rapid development of the trucking industry. In particular the haulage of goods by road in excess of 30 miles was prohibited if there was a railway available (Hyde, 1989; King, 1971).

Due mainly to the constraints placed by competition from road, the total rail network increased by only a further 866 km after 1920 to reach a peak of 5696 km of track in 1952. Since then as a result of considerable rationalisation of the rail network, the length of open railway track had reduced to 4040 km by 1992. Appendix 1 shows the location of the current open railway track in New Zealand compared with the peak network in the 1950's.

The regulations limiting freight transport by road were progressively relaxed by releasing some commodities and the distance was extended to 40 miles in 1961 and 150 km in 1977. The distance regulation was finally removed entirely in 1983 with the deregulation of the road transport industry (Hyde, 1989).

Since the early 1980's successive Governments have been involved in the process of reforming state trading organisations in New Zealand. In general, this has involved a three phase process as outlined by Mascarenhas (1991, p28):

"Phase one involves the adoption of administrative measures to alter the operating environment of existing public enterprises, i.e. commercialization and corporatization. Phase two of the reform process seeks improvement in performance by making enterprises more competitive through deregulation. Phase three is associated with the transfer of assets from government to the private sector, i.e. privatization."

The railway system in New Zealand has undergone restructuring along the lines indicated by phases one and two of this process. This paper discusses these developments. Section 2 briefly reviews the position of the New Zealand Railways Department in 1982, prior to being established as a statutory corporation. Section 3 discusses how the NZ Railways Corporation was restructured to cope with the deregulation of the road transport industry in New Zealand and examines the Corporation's financial and operating performance between 1982 and 1990. The current performance and structure of NZ Rail Ltd are outlined in Section 4 and the issue of ownership of the rail system is briefly discussed in Section 5. Some concluding comments are provided in Section 6.

2. NEW ZEALAND RAILWAYS DEPARTMENT

Prior to 1 April 1982, the railway system in New Zealand was managed and controlled by a single public agency, then called the New Zealand Railways Department. This department was frequently used as an instrument of Government's social and economic policies. By March 1982 operating losses had increased to \$57 million and net losses after interest payments had risen to \$99 million (NZ Railways Department, 1982):

"...The principal cause of this result was the obligation to absorb on to the regular staff some 600 persons who had previously been found work with Railways under various Department of Labour sponsored employment creation schemes.

In addition the department was requested to recruit school leavers, including apprentices over and above its own requirement to the maximum capacity of railway's training facilities."

(NZ Railways Department, 1982, p13)

Also freight rates were often kept constant for price stability purposes even though railways input costs were increasing (Small, 1991). These social and economic objectives were in direct conflict with the Railways Department's commercial objectives.

Operations covered a diverse range of rail, ferry, road service and other activities. The revenue from these sources for the year ended 31 March 1982 is summarised in Table 1. As can be seen from this table, the major activity of the Railways Department was the transportation of freight (74% of revenue) with the Cook Strait ferries being the second highest revenue earner (12%). Suburban and long distance rail passengers contributed only a relatively small 3.5% towards total revenue.

Table 1: NZ Railways Department Revenue for the Year Ended 31 March 1982

	\$(million)	(%)
Railway Operations		
Goods, livestock & parcels	376.9	74.3
Long distance passengers	9.1	1.8
Suburban passengers	8.6	1.7
Catering services	4.7	0.9
Cook Strait ferries	60.9	12.0
Road Services	36.4	7.2
Housing income	2.6	0.5
Advertising services	0.7	0.1
Miscellaneous revenue	7.4	1.5
Total Revenue	507.3	100.0

Source: NZ Railways Department, 1982

The Railways Department was organised on a functional branch basis (shown in Appendix 5) comprising the Mechanical Branch (7,297 employees), Traffic (6,449), Way and Works (4,681), Road Services (1,477), General Manager's Office, Commercial & Finance

Divisions (486), Stores (376), Publicity and Advertising (68) and 776 sea going staff employed on the Cook Strait ferries. The total number employed by the Department at 31 March 1982 was 21,610 people. (South Pacific Merchant Finance Ltd, 1983).

The organisational structure of the Railways Department reflected the fact that Railways had been structured as a Government trading department operating in a protected environment, where marketing and competition for customers had not been a major consideration.

3. NEW ZEALAND RAILWAYS CORPORATION (1982 - 1990)

3.1 Establishment of the Corporation

Following the introduction of the New Zealand Railways Corporation Act 1981, the Railways Department became reconstituted on 1 April 1982 as the New Zealand Railways Corporation, with a Board of Directors comprising representatives from a wide spectrum of the business community. The major purpose of this restructuring was to allow NZ Railways to run its operations on a more commercial basis, as reflected in Section 12(1)(e) of the Act which required the Corporation :

"to endeavour to carry on the operations of the corporation in such a way that revenue exceeds costs, including interest and depreciation; and to provide for a return on capital that may be specified from time to time by the Minister of Finance."

The need for change became even more urgent with the final deregulation of the road transport industry in New Zealand in November 1983. The freight transport market in New Zealand had become highly competitive. This is illustrated in Appendix 2 which shows that there were about 3,700 enterprises engaged in freight transport in 1984/85, generating a total revenue of about \$2 billion from freight and related activities. NZ Railways Corporation, the largest land freight transport operator, had a market share of about 19% (based on an estimated freight revenue of \$380 million).

3.2 Restructuring the Corporation

One of the first initiatives of the new Board after the establishment of the Corporation was to commission Booz Allen & Hamilton, an American based international management consulting firm with considerable expertise in restructuring transportation organisations, to review the whole of Railways operations and to assist with preparing the Corporation for the future (NZ Railways Corporation, 1983). Together with railway staff and other consultants, a number of strategic studies were undertaken (Small, 1992), including :

- the Core Network study which examined the optimum network size to determine whether there should be any dramatic reductions in network size;
- the Line of Business study which looked at the profitability of the different lines of business and their continuation;
- the Zero-based study that assessed the minimum assets and resources required to run the core business, building these up line by line and service by service.

The strategy that emerged from these and other studies was that NZ Railways Corporation should:

"remain a general-purpose railway business, within the existing network, subject to continual review, and to reduce costs to enable it to become the low-cost competitor."

(Small, 1992, p8)

As outlined by Small (1992), there were a total of 110 specific projects set up to implement this general strategy covering every aspect of the business, including projects related to:

- marketing - new marketing initiatives and new marketing information systems;
- terminals - rationalising the number of terminals, setting up profit centres for each terminal, developing the hub and spoke system, improving freight handling, and setting up a Customer Service centre;
- operations - introduction of longer heavier trains and bulk wagons, reduced marshalling, single person crewing, and track warrant control;
- Interisland Line (Cook Strait ferries) - upgrading passenger services, reducing servicing and improving management;
- infrastructure - improved mechanisation, reduced track maintenance, restructuring track works and signal resources;
- workshops - rationalising the number and activities of the workshops;
- communications - use of the fibre-optic cable alongside the North Island main trunk line and a new network of PABX's;
- information systems - new computer hardware and the development of systems covering all aspects of the business including operations, marketing, accounting and personnel.

Generally the line managers, in their appropriate business groups, were responsible for the management and implementation of these projects, but local and international consultants were used where required. The Chief Executive retained overall responsibility for coordinating the work of the project teams. Because of the time pressures to implement these changes, proven overseas models were adapted to the New Zealand environment, particularly "US railway models and technology and British ferry operations" (Small, 1992, p8).

During this period of restructuring, NZ Railways Corporation "...made use of the best technology of the day" which brought about both productivity and marketing improvements (Small, 1992, p8). In addition, the largest single capital investment was undertaken - the electrification of the North Island main trunk line between Hamilton and Palmerston North (Small, 1991).

A total of about \$970 million was spent on capital expenditure to achieve these productivity gains (and also on replacement of essential assets) between 1982 to 1990 by the NZ Railways Corporation (see details in Appendix 3). This reflects the highly capital intensive nature of railway operations. Electrification of the main trunk line between Hamilton and Palmerston North had a capital cost of about \$250 million (Debt Relief And Restructuring - Next Stop Privatisation, 1990).

Small (1992) has identified the main factors which led to the successful restructuring of the NZ Railways Corporation. These included:

- a commitment by Government to reform the rail system and New Zealand economy in general. Of particular importance was the restructuring of the collective bargaining process, which removed railways from the State sector centralised wage fixing system and allowed the Corporation to introduce its own conditions of employment agreements. Also industrial law reform provided the Corporation with the freedom to negotiate with unions on the same basis as private sector business organisations (NZ Railways Corporation, 1988);
- the determination of the Board and management of the Corporation, particularly resisting the pressures to dilute the proposals for change;
- the cooperation by the staff and unions to achieve the overall strategy once it was recognised that former levels of government funding would not be available in the future and the railways long term survival and viability were at stake. This was assisted by the development of a "generous voluntary severance package" in 1986. The attractiveness of this package was confirmed by the number of people who accepted it. "By September 1990 some 7,680 people had taken it, at a cost of around \$251 million" (Small, 1992, p12);
- a substantial change in the Railway Corporation's organisational structure with the previous functional branch structure being replaced with separate customer oriented business groups, each with its own specific role and repositioning objectives, and established as separate cost centres with financial goals. A system of transfer pricing was set up to operate between the groups with each group pricing on a "steady state" basis (also discussed in Cavana (1989)); and
- development of better communication links with staff and clients outlining the strategies, reasons and steps involved in the change process. Initially there was some union resistance to management communicating directly with staff as this had traditionally been the function of the unions. A variety of communication strategies were tried including television, workplace meetings, written material distributed at work and also sent to employees homes.

3.3 Operating Performance of the Corporation

The NZ Railways Corporation appears to have responded well to the restructured organisational environment and the pressures of a deregulated market. The following achievements have been recorded over the period from 1 April 1982 to 30 June 1990:

- staff numbers reduced by 64% from 22,000 in 1982 to 8,000 in 1990;
- wagon fleet numbers decreased by 57%;
- the number of mainline locomotives reduced by 35%;
- 18% increase in the average size of trains;
- 30% improvement in the utilization of wagons;
- real freight rates lowered by 50%;
- overall labour productivity increased by 125%.

Offsetting these productivity gains were a 16% decrease in the total volume of freight carried by distance and a 28% decrease in tonnages carried reflecting the changing composition of freight traffic over this period. (Small, 1990 & 1991; NZ Railways Corporation, 1990; NZ Rail Ltd, 1992b). The changes in freight carried by NZ Railways between 1980 and 1990 are summarised in Table 2. Further details of operational statistics for the NZ Railways Corporation between 1982 to 1990 are provided in Appendices 3 & 4.

Table 2: Freight Carried by NZ Railways in 1980 & 1990.

Commodity Group	Year Ended March 1980		Year Ended March 1990	
	(000 tonnes)	(%)	(000 tonnes)	(%)
Primary Agricultural Prod.	539	4.6	363	4.2
Processed Agricultural Prod.	1374	11.7	1262	14.7
Coal, Quarry & Mine Prod.	1330	11.4	1554	18.1
Agricultural Lime & Fertiliser	1038	8.9	362	4.2
Pulp & Paper Prod.	989	8.4	1282	15.0
Timber & Logs	2308	19.7	1260	14.7
Petroleum Prod.	622	5.3	149	1.7
Manufactured Goods	1815	15.5	1361	15.9
Other Goods	1689	14.4	977	11.4
Total Freight Carried	11705	100.0	8571	100.0

Source: NZ Rail Ltd, 1991b

Of the 8.6 million tonnes transported by NZ Railways Corporation in 1990, 1.3 million tonnes ("equivalent to 450,000 fully grown elephants") were carried by the Interisland Line (i.e. the Cook Strait ferries) (Needham, 1991). This represented about 15% of the total tonnage carried by the NZ Railways Corporation, although more importantly, about one third of the total traffic (as measured by net tonne-kilometres) is transported by the ferries across the Cook Strait (NZ Rail Ltd, 1992b).

Table 2 also reflects the reduction in Railways freight business since deregulation of the New Zealand road transport industry in 1983. Other explanations for this reduction in freight traffic include the shifting pattern of world trade over this period and the result of structural changes to the New Zealand economy due to other Government policy changes (e.g. the reduction in border protection and tariffs on imported goods, the removal of industry assistance, export incentives and agricultural assistance).

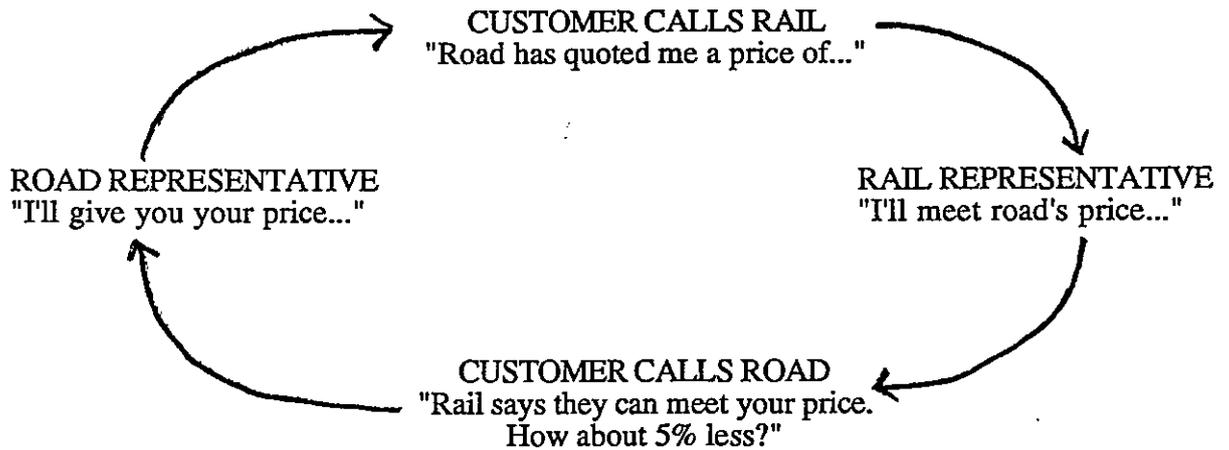
3.4 Freight Rates

Since deregulation of the road transport industry in 1983, NZ Railways Corporation's freight rates have dropped by about 50% in real terms. This had been driven by the extremely competitive pricing environment that existed in New Zealand over this period. Since truckers could enter and depart the road transport industry relatively freely, rates

were established by customers who used rate quotes to play one freight operator against another, assuring that the lowest cost/most efficient operators set the market price. This process is illustrated in Figure 1 based on Booz Allen Hamilton's market research experience in New Zealand.

Figure 1

Competitive Pricing Environment



Source: Booz Allen Hamilton (1989, p6)

Thus in the long term, prices stabilise when the low cost operator achieves a reasonable rate of return. Numerous factors led to the real decreases in truck operator's costs between 1983 to 1989. These included (Booz Allen Hamilton, 1989):

- prices for new trucks (over 20 tonne gross vehicle weight) decreasing by an average of about 33%, due to changes in tariffs, taxes and truck related regulations;
- diesel prices decreasing by about 43% due to a drop in the international prices of crude oil; the competitive discounting as a result of deregulation of petroleum distribution in New Zealand; and the reduction of diesel excise duties;
- the elimination of long distance fees in 1986 (established in 1983 when the road transport industry was deregulated), only partially offset by increases in road user charges;
- an increase in the maximum permitted gross vehicle weight from 39 tonnes to 44 tonnes contributing a further 14% decline in road transport costs.

These changes to Railways competitors' cost structures put further pressure on the Corporation to continue with its restructuring and also added to the Corporation's financial difficulties over this period, from the reduction in real freight rates. In addition reform of coastal shipping in New Zealand provided further competitive pressures.

3.5 Financial Performance of the Corporation

Selected financial statistics and ratios based on information contained in the NZ Railways Corporation's annual reports between 1982 to 1990 are summarised in Appendices 3 & 4. These figures include financial data from the profit & loss accounts and the balance sheets. Financial ratios include measurements of liquidity, debt leverage, resource activity and utilisation, and profitability. The deteriorating financial performance over this period reflected the increasingly competitive environment in which Railways operated in and the costs associated with restructuring and downsizing the Corporation.

By 1989 operating losses had increased to \$41 million and the overall net loss after interest payments, severance costs and extraordinary items had increased to \$333 million (for the 15 month period to 30 June 1989 - note the change of financial year from March to June following the change by central government). Shareholders equity had dropped to 4% of total assets and the Corporation was on the verge of technical bankruptcy. This resulted in a substantial restructuring of the Railways Corporation balance sheet on 1 January 1990. The Government injected additional equity of \$360 million, took over about \$1,087 million of Rail debt and wrote down the Rail assets by \$856 million. "These changes stemmed from an intention to restructure the balance sheet in a form that reflected the economic value of the on-going core business" (NZ Railways Corporation, 1990, p3).

Between 1982 and 1990 the Corporation's cumulative net losses amounted to \$608 million, partly due to the cumulative interest and financial charges (\$440 million) and cumulative severance costs (\$236 million). However the Corporation had also received a total of \$470 million in Social Service Payments and subsidies over this period. (Further details are provided in Appendices 3 & 4).

The results of the restructuring and repositioning of the Railways were beginning to become apparent by the year ended June 1990 with the Corporation showing its first operating profit of \$13 million after 4 years of operating losses. Nevertheless this still represented only 2% of the Corporation's total revenue in that year. The balance sheet and operations were further restructured with the establishment of New Zealand Rail Ltd in October 1990.

4. NEW ZEALAND RAIL LTD (1990 - 1992)

NZ Rail Ltd was established on 28 October 1990 by the New Zealand Railways Corporation Restructuring Act 1990 to take over the rail related activities from the NZ Railways Corporation (Wright, 1990). The new company's mission is:

"to provide its customers with quality and competitively priced freight and passenger services by rail and interisland ships, thereby maximising shareholder value."

(NZ Rail Ltd, 1991c)

NZ Rail Ltd is directed by a Board of Directors which is accountable to its shareholders, the Minister of Finance and the Minister for State Owned Enterprises. NZ Rail Ltd leases its land, including the right of way for the rail track (i.e. the undeveloped land used for the rail track), from the New Zealand Railways Corporation, which had retained two former rail business groups for the purposes of selling the surplus land and the road related passenger transport activities (Wright, 1990).

The organisational structure of NZ Rail Ltd has now been further refined to reflect the continuing emphasis on providing a quality service to satisfy Rail customers and market

needs for transportation services within New Zealand. The current structure comprises the following business groups (NZ Rail Ltd, 1992a):

Railfreight - responsible for marketing and managing the Company's freight products;

Passenger - responsible for marketing and managing all rail and ferry passenger products, as well as passengers' private vehicles and commercial vehicles on the ferries; and

Operations - which consolidates the operational divisions including rail operations, ferry operations, track and other infrastructure, and rolling stock supply and management.

The corporate support services group provides support services for these three business groups. A recent organisational chart for NZ Rail Ltd is provided in Appendix 5.

In the year ended June 1992, rail freight revenue contributed \$345 million (or 69%) of NZ Rail Ltd's total revenue of \$496 million, rail passenger revenue contributed \$56 million (11%), the Interisland Line contributed \$66 million (13%) and other revenue contributed \$29 million (6%) (NZ Rail Ltd, 1992a). Although this revenue breakdown is not directly comparable with the figures in Table 1 for the NZ Railways Department for 1982 because of the different activities involved, it is interesting to note that the relative revenue share from the ferry operations and rail freight operations remained fairly constant at about 12-13% and 69-74% respectively.

Currently NZ Rail Ltd carries nearly 9 million tonnes of freight each year or about 2,500 million net tonne kilometres with an average haul of nearly 300 kilometres (NZ Rail Ltd, 1992a). Operating profit at \$40 million represents about 8% of total revenue and net profit at \$36 million provides a 12% return to shareholders funds. Although NZ Rail Ltd is liable for company tax, at present tax is not paid because of the expenses incurred in restructuring. Debt levels are about 23% of total assets and all the financial ratios summarised in Appendix 4 indicate that NZ Rail Ltd is now in a sound financial position. (Other financial and operating statistics are summarised in Appendices 3 & 4).

However the future viability of NZ Rail Ltd is not totally assured because the transport industry in New Zealand is extremely competitive and there is an ongoing need for relatively large amounts of capital for the replacement of assets. The continuing challenge for the future is emphasised by the comments of Dr A.F.Small, Managing Director of NZ Rail Ltd in the 1992 annual report (NZ Rail Ltd, 1992a, p18):

"Until we achieve levels of profit which allow us to make a return on assets above and beyond that which is required for the replacement and development of our operating equipment, our business cannot be regarded as being a good long-term investment. It is our continuing task to work harder and to work smarter to achieve a sufficient return to meet this goal."

Although NZ Rail Ltd is substantially restructured and is more or less achieving its goals as set out in its Statement of Corporate Intent (NZ Rail Ltd, 1992a, p7), there is still a further stage of restructuring which has been suggested - privatisation (NZ Railways Corporation, 1990, p2; Small, 1992, p16). This raises the issue of the advantages of private ownership of the New Zealand railway system compared with the current state ownership.

5 RAILWAY OWNERSHIP

Currently the railway system in New Zealand is owned and managed by NZ Rail Ltd, which owns all the rail related assets and operates the rail system. However, the NZ Railways Corporation still owns the land including the right of way associated with the rail network, and leases this to NZ Rail Ltd.

These two organisations were previously part of the NZ Railways Corporation and became separated on 28 October 1990 following the introduction of the New Zealand Railways Corporation Restructuring Act 1990. NZ Rail Ltd has been set up as a private company with a restructured Balance Sheet which could, potentially, be readily privatised in the future (Debt Relief And Restructuring - Next Stop Privatisation, 1990). Since the restructuring of NZ Rail Ltd is largely completed (without the burden of the Railways Corporation former \$1.1 billion debt), NZ Rail Ltd is well placed for sale to the private sector along the lines of other State assets sales in recent years.

In a recent paper, Kunz and Shiel (1988) have examined the effects of rail ownership (private vs government) on performance of railways in a selected number of developed countries. They compared revenue and expenditure figures for 1981 and 1985, as well as productivity levels per employee. On the basis of the data available they concluded that; "no direct link between rail ownership and performance could be established". During the period of their studies a number of institutional and regulatory changes occurred in the countries studied, similar to the changes that have occurred in New Zealand in recent years.

In discussing their results Kunz and Shiel (1988, pp49-51) suggest that "the inconclusiveness of the results may be due to the relatively recent timing of the organisational and institutional changes described". Alternatively they suggest:

"it could be argued that rather than the private or public nature of the enterprise, it is the relative freedom given to its management to manage and the environment in which to compete realistically, which determines efficiency".

These results quite clearly also apply to the Railways in New Zealand whose performance (labour productivity) has increased by over 200% since the establishment of the Corporation in 1982, as a direct result of the changes to the organisational, institutional, political and commercial environment which NZ Railways operated in during the period from 1982 to 1992.

However the question of ownership of NZ Rail Ltd and NZ Railways Corporation still remains. As can be seen from Appendix 6, Railway organisations throughout the OECD countries are predominantly State owned with the major exceptions being the United States, Canadian and Japanese railway systems. (See Mascarenhas (1992) for an analysis of why private ownership of railroads is preferred to public ownership in the United States). It would seem that the major efficiency/productivity gains have already been made in the rail system in New Zealand, by appropriate institutional and regulatory changes. Hence justification for the sale of the rail system to the private sector could be for fiscal reasons (e.g. to reduce the public debt) or if the Government wished to get out of the rail transport business (which is consistent with successive Government's general privatisation (state asset sales) programmes in New Zealand since 1984).

The current Government's privatisation strategy was outlined in the 1991 Budget (Richardson, 1991). The Government indicated that it will:

"promote privatisation in order to achieve benefits for the country as a whole from:

- refocussing the state sector on areas of core government responsibility;
- transferring from the state sector business enterprises that will perform better in private ownership."

Sale of NZ Rail Ltd to the private sector could be further justified if the analogy is drawn to other transportation companies in New Zealand which are predominantly privately owned (e.g. for all transport modes including land, sea and air). However it could also be argued that the rail right of way (currently owned by NZ Railways Corporation) should remain in public ownership, to preserve public access in the future and to remain broadly consistent with the public ownership of the roads, sea and air utilised by public and private sector organisations operating in the other transport modes.

Consequently the issue of ownership of the components of the rail system in New Zealand is an important issue which still requires further consideration. In addition there are other related issues associated with public ownership of the roads (i.e. the right of way and the developed roads) versus public/private ownership of the rail track and associated right of way. For example, these would include the setting of appropriate charges for the use of roads by road transport operators, currently covered by Road User Charges.

6. CONCLUSIONS

This paper has examined the performance of the railway system in New Zealand over the period from 1982 to 1992, during which considerable institutional and regulatory changes took place. During this period the NZ Railways Department was converted on 1 April 1982 into a statutory corporation, the NZ Railways Corporation; the land transport sector was totally deregulated in November 1983; the Corporation underwent a dramatic financial reconstruction in January 1990; followed by a further reconstitution into NZ Rail Ltd, a limited liability company, in October 1990. These changes followed the general pattern of reform of state trading organisations by successive Governments in New Zealand since the early 1980's.

Overall the numbers employed in the railway system in New Zealand dropped from 21,600 in 1982 to 5,400 in 1992; freight carried by distance dropped by 24%; wagon fleet numbers were reduced by 62%; and labour productivity increased by over 200%. However offsetting this, total severance payments amounted to \$323 million and fixed asset purchases were \$1,053 million. It is too early to tell whether the restructuring of the railway system in New Zealand was a total success in terms of the investment of capital and reduction of labour. For example, in 1986, the international management consultants Coopers & Lybrand from London completed a mid-term audit of the North Island main trunk electrification programme. They concluded that the conditions had altered so much since the time that the project was proposed in 1981 that the best diesel option in 1986 was more cost effective than the electrification option by a net present day value of \$115 million. Hence the project would not have started if the decision had been made in 1986 (NZ Railways Corporation, 1987, p4). Also the wider social costs of reducing the railways labour force by 16,200 people, or 75% of the 1982 levels, have not yet been fully evaluated.

However, following the Government writing off NZ Railways Corporation's debt by \$1.1 billion in 1990, injecting equity capital of \$360 million and writing down Rail assets by \$856 million, the reconstructed NZ Rail Ltd is now showing satisfactory financial returns.

In 1992 NZ Rail Ltd produced a net profit of \$36 million, which was equivalent to a 12% return on shareholders funds.

The position has now been reached where privatisation of the New Zealand railway system is considered to be a viable alternative, even though many of the normal gains associated with privatisation, e.g. in terms of increased efficiency, have already been made. However, there may be some further gains from privatisation, particularly in terms of increased flexibility in investment decision making. Nevertheless there are some significant public policy issues that need to be further considered in the process of determining whether the benefits of privatisation of the New Zealand railway system would outweigh continued State ownership.

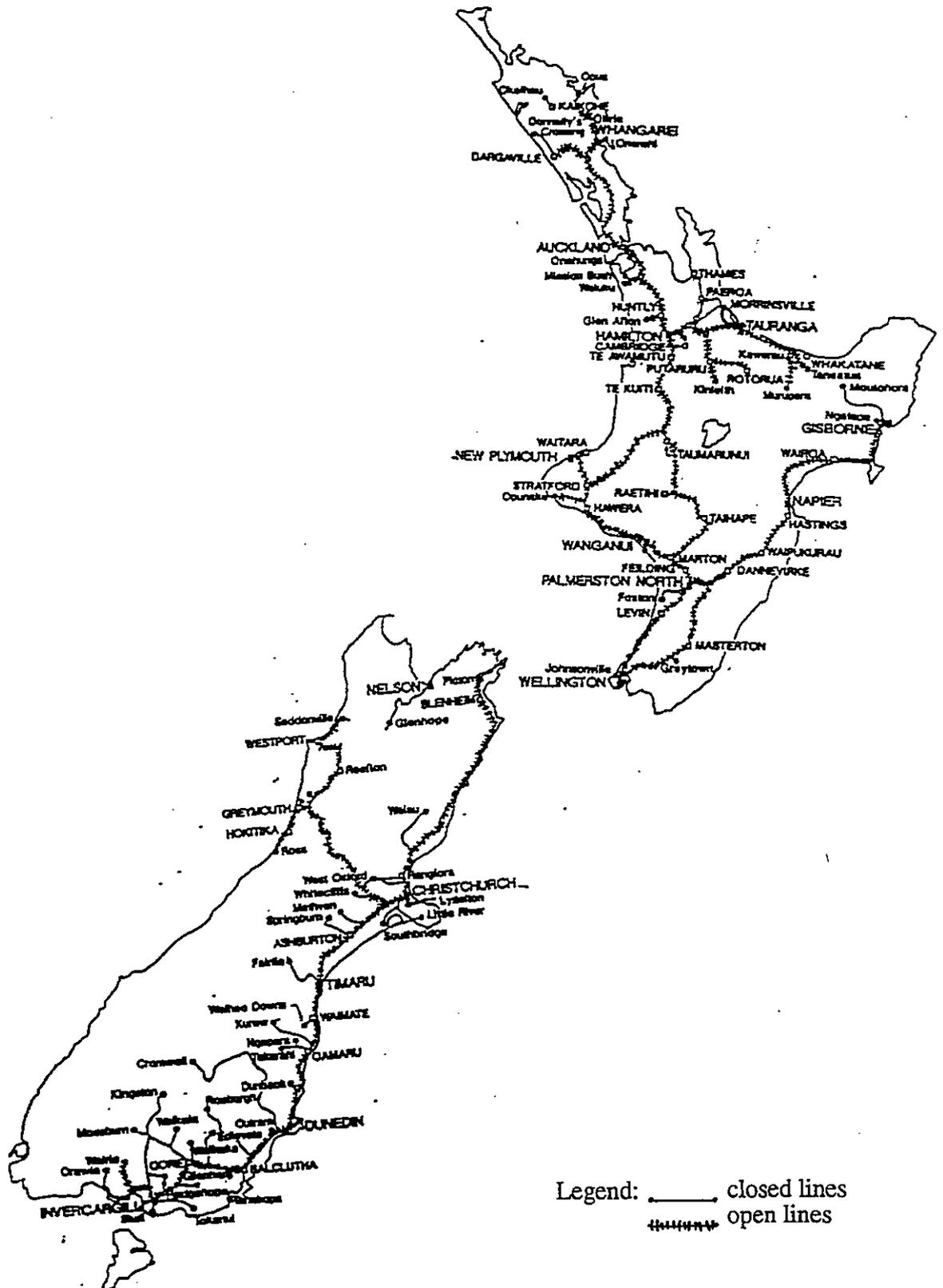
REFERENCES

- Booz Allen Hamilton (1989), Report to NZ Railways Corporation, Wellington, (Confidential Report)
- Cavana, R.Y. (1989), Spreadsheet Modelling in Practice: Some Applications From NZ Railways, Proceedings of the 25th Annual Conference of the Operational Research Society of New Zealand, 21-22 August 1989, Victoria University of Wellington, pp11-16
- Debt Relief And Restructuring - Next Stop Privatisation? (1990), RAILS, May 1990, pp208-209
- Hyde, K. (1989), Telling The World About The NZR Experience, RAILS, Wellington, July 1989, pp263-269
- King, M.A. (1971), The Structure and Ownership of the New Zealand Licensed Roads Goods Transport Industry, Unpublished Ph.D. Thesis, Victoria University of Wellington
- Kunz, M. and Shiel, M. (1988), Comparative Analysis of the Effect of Rail Ownership on Performance, Forum Papers, Vol. 1, pp35-55, 13th Australasian Transport Research Forum, Christchurch, July 1988
- Leitch, D. and Stott, B. (1988), New Zealand Railways: The First 125 Years, Heinemann Reed, Auckland
- Mascarenhas, R.C. (1991), State-Owned Enterprises. In: Boston, J., Martin, J., Pallot, J. and Walsh, P. (eds), Reshaping the State: New Zealand's Bureaucratic Revolution, Oxford University Press, Auckland
- Mascarenhas, R.C. (1992), State Intervention in the Economy: Why is the United States Different from Other Mixed Economies?, Australian Journal of Public Administration, Vol. 51, No. 3, September 1992
- Needham (1991), How Freight People See The New Interislander, The Transportant, Vol. 21 No. 3, June/July 1991, p15
- NZ Department of Statistics (1987), Census of Transport, Storage and Communication, 1984-85, Wellington
- NZ Department of Statistics (1992b), Personal Communication, Prices Section, Wellington, (INFOS System)
- NZ Rail Ltd (1991a,1992a), Annual Reports 1991,1992, Wellington
- NZ Rail Ltd (1991b,1992b), Personal Communication, Wellington
- NZ Rail Ltd (1991c), Statement of Corporate Intent, 1991 to 1994, Wellington
- NZ Railways Corporation (1983,...,1990), Annual Reports 1983....1990, Wellington
- NZ Railways Department (1982), Report of the Railways Department for the year ended 31 March 1992, Wellington, (AJHR, F7)

- Richardson, Hon. Ruth (1991), BUDGET 1991, Wellington, (AJHR, B6A)
- Small, F. (1990), The New Railway Company - What It Is, What It Will Do, RAILS, December 1990, pp101-102
- Small, F. (1991), Another International Conference Learns From NZ Rail, RAILS, January 1991, pp124-129
- Small, F. (1992), The Corporatisation Process: 1982 - 1992, NZ Rail Ltd, Wellington, (Paper presented to the Association of Professional Engineers and Scientists, Australia)
- South Pacific Merchant Finance Ltd (1983), New Zealand Railways Corporation NZ \$50,000,000 Bearer and Registered Bonds; Due 1987-1990, Wellington (with Development Finance Corporation of NZ)
- Wright, Sir Allan (1990), Railway Company Launched At Wellington Function, RAILS, December 1990, pp100-101

APPENDIX 1

Lines Operated by New Zealand Railways: Past and Present



Source: Derived from Leitch and Stott (1988, pp 173-4) & NZ Rail Ltd (1991b).

APPENDIX 2

Road vs Rail: Freight Revenue, Market Share and Number of Group Enterprises

(1984/85)

Industry Sub-Group	Revenue (i) (\$m)	Market Share (%)	Group (ii) Enterprises (No.)
Logging	45	2.2	97
Stock Haulage	88	4.3	128
Refrigerated	40	2.0	50
Heavy Haulage	35	1.7	61
Bulk Haulage	194	9.5	577
Furniture Removals	46	2.3	65
Route Haulage	24	1.2	25
General	687	33.6	1925
Other	59	2.9	623
Freight Forwarders	446	21.8	161
	-----	-----	-----
	1664	81.5	3712
NZ Railways Corp.	380	18.6	1
	-----	-----	-----
	2044	100.0	3713
	=====	=====	=====

Notes:

(i) Revenue from transporting freight plus commission income (mostly freight forwarding).

(ii) A group enterprise is defined as an independent business operating in New Zealand either as a single business entity or a group of business entities under common ownership or control.

Sources: Derived from NZ Department of Statistics (1987) & NZ Railways Corporation (1985)

APPENDIX 3

SELECTED FINANCIAL AND OPERATIONAL STATISTICS FOR THE NEW ZEALAND RAILWAY SYSTEM : 1982 - 1992

	NZ Railways Dept	NZ Railways Corporation								NZ Rail Ltd		
		Year Ended March 1982	Year Ended March 1983	Year Ended March 1984	Year Ended March 1985	Year Ended March 1986	Year Ended March 1987	Year Ended March 1988	Year 15 Months Ended June 1989 (1)	Year Ended June 1990	8 Months Ended June 1991 (2)	Year Ended June 1992
SELECTED FINANCIAL STATISTICS												
<i>Profit & Loss Data</i> (\$ million)												
Total Revenue (incl SSPs & subsidies)	507	659	626	592	653	666	667	827	601	350	496	
Social Service Payments & Subsidies		95	86	70	86	84	49					
Operating Costs	564	617	583	589	661	690	684	867	588	330	456	
Personnel Costs	352	381	366	365	409	439	437	482	340	179	245	
Operating Profit (Loss)	(57)	42	43	3	(8)	(24)	(17)	(41)	13	20	40	
Interest & Financial Charges	43	18	24	31	38	46	74	175	34	-	-	
Severance Payments						41	57	90	48	48	39	
Net Profit (Loss)	(99)	24	24	(20)	(46)	(111)	(148)	(333)	2	34	36	
<i>Balance Sheet Data</i> (\$ million)												
Current Assets	116	126	154	207	210	204	180	175	171	137	105	
Debtors	39	38	38	72	56	71	94	97	91	55	41	
Inventories	67	83	89	98	97	96	85	64	54	69	53	
Fixed Assets	700	783	879	925	1029	1111	1196	1230	451	230	259	
Total Assets	816	910	1034	1137	1262	1359	1449	1485	651	388	379	
Current Liabilities	13	61	63	143	99	102	176	416	66	53	53	
Creditors	9	32	35	43	53	54	71	99	58	51	45	
Long Term Liabilities	488	120	158	229	450	663	833	975	0	0	15	
Total Liabilities and Provisions	527	208	247	400	578	807	1042	1419	223	111	89	
Shareholders Funds	289	702	787	737	684	552	407	66	428	277	290	
<i>Other Financial Data</i>												
Fixed Assets Purchases (\$ million)	100	106	86	88	149	132	139	132	140	32	49	
Consumer Price Index (excl. GST) (4)	480	553	582	632	728	758	860	905	939	991	1008	
SELECTED OPERATIONAL STATISTICS												
Staff Numbers (incl. sea-going staff)	21610	20865	19148	18213	17811	14919	12511	9461	8418	5899	5397	
Freight Carried (million tonnes)	11.5	11.1	10.6	10.4	9.6	9.0	8.9	10.8	8.3	5.5	8.7	
Ave Distance Carried (kilometres)	283	285	298	307	317	323	328	303	331	290	285	
Freight by Distance (million net tonne kms)	3265	3164	3165	3192	3051	2912	2924	2641	2744	1576	2475	
Wagon Fleet (no.)	26899	25754	24548	23267	20610	18305	15948	13212	11479	10815	10162	
Mainline Locomotive Fleet (no.)	328	324	288	279	276	269	264	230	213	205	200	
Suburban Rail Passengers (million trips)	13.4	12.8	13.6	14.4	14.8	14.2	na	na	na	7.0	12.0	
Long Distance Rail Passengers (mill. trips)	0.9	0.9	0.9	0.8	0.8	0.8	na	na	na	0.2	0.5	
Length of Rail Track Open (kilometres)	4418	4332	4273	4273	4266	4266	4266	4250	4029	4029	4040	

Notes:

- (1) This period covers the 15 months ended 30 June 1989 due to a change in the financial year from March to June.
(2) This period covers only the 8 months ended 30 June 1991 since NZ Rail Ltd was established on 30 October 1990.
(3) The annual report for 1988 shows the operating loss as \$37 million and total revenue as \$647 million, with \$20 million of the Government subsidies shown as an extraordinary item before calculating net profit. The figures shown here have been adjusted to provide comparisons with previous years.
(4) March year annual ave CPI until March 1988 and June year annual average CPI from June 1989. GST has been excluded from these figures: 10% GST introduced in Oct 1986 (ie removed from the ann. ave for Jun 1987) & a further 2.5% in June 1989 (ie removed from the ann. ave for Jun 1990).

Sources:

NZ Railways Department (1982); NZ Railways Corporation (1983 to 1990); NZ Rail Ltd (1991a, 1992a, 1992b); NZ Department of Statistics (1992)

APPENDIX 4

RAILWAY SYSTEM IN NEW ZEALAND : SUMMARY OF KEY FINANCIAL RATIOS, 1982 - 1992

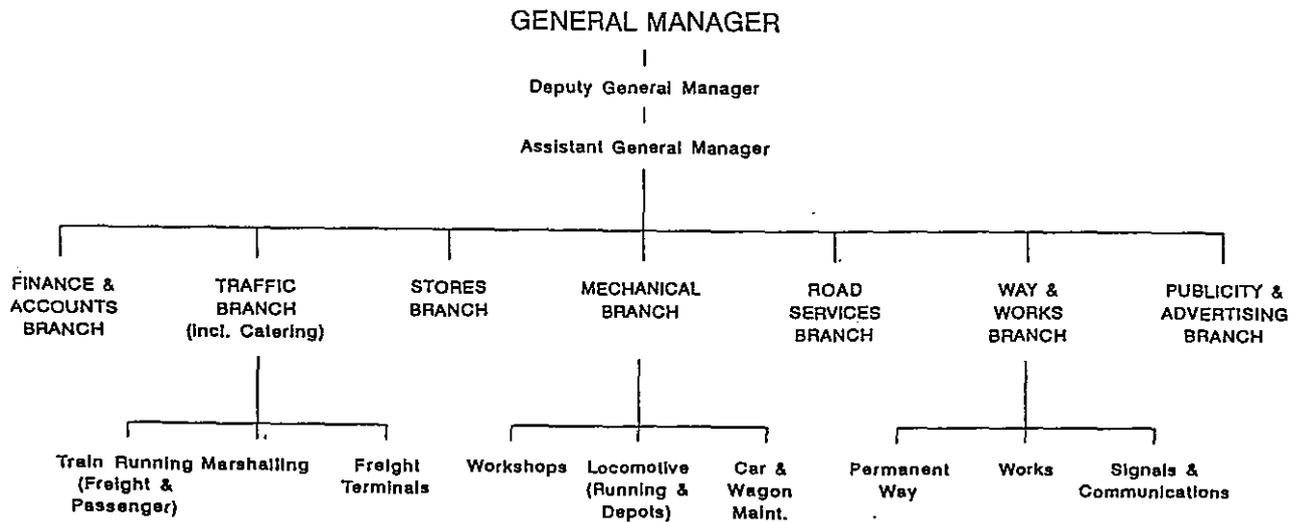
	NZ Railways Dept	NZ Railways Corporation									NZ Rail Ltd	
		Year Ended March 1982	Year Ended March 1983	Year Ended March 1984	Year Ended March 1985	Year Ended March 1986	Year Ended March 1987	Year Ended March 1988	15 Months Ended June 1989	Year Ended June 1990	6 Months Ended June 1991	Year Ended June 1992
		Liquidity Ratios										
Current ratio (1)	8.9	2.1	2.4	1.4	2.1	2.0	1.0	0.4	2.5	2.6	2.0	
Quick ratio (2)	3.8	0.7	1.0	0.8	1.1	1.1	0.5	0.3	1.7	1.3	1.0	
Leverage Ratios												
Debt to total assets ratio (3)	65%	23%	24%	35%	46%	59%	72%	96%	34%	29%	23%	
Debt to equity ratio (4)	182%	30%	31%	54%	85%	146%	256%	2150%	52%	40%	31%	
Long term debt to equity ratio (5)	169%	17%	20%	31%	66%	120%	205%	1477%	0%	0%	5%	
Times interest earned ratio (6)	(1.3)	2.3	1.8	0.1	(0.2)	(0.5)	(0.2)	(0.2)	0.4	na	na	
Activity Ratios												
Inventory turnover (7)	7.6	7.9	7.0	6.0	6.7	6.9	7.8	12.9	11.1	5.1	9.4	
Fixed assets turnover (8)	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.7	1.3	1.5	1.9	
Total assets turnover (9)	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.6	0.9	0.9	1.3	
Average collection period (days) (10)	28.1	21.0	22.2	44.4	31.3	38.9	51.4	42.8	55.3	57.4	30.2	
Profitability Ratios												
Operating profit (loss) margin (11)	(11%)	6%	7%	1%	(1%)	(4%)	(3%)	(5%)	2%	6%	8%	
Net profit (loss) margin (12)	(20%)	4%	4%	(3%)	(7%)	(17%)	(22%)	(40%)	0%	10%	7%	
Return on total assets (13)	(12%)	3%	2%	(2%)	(4%)	(8%)	(10%)	(22%)	0%	9%	9%	
Return on shareholders equity (14)	(34%)	3%	3%	(3%)	(7%)	(20%)	(36%)	(505%)	0%	12%	12%	
Other Ratios												
Freight labour productivity index (15)	100	100	109	116	113	129	155	185	216	177	304	
Personnel to operating costs ratio (16)	62%	62%	63%	62%	62%	64%	64%	56%	58%	54%	54%	
Revenue per staff member (\$) (17)	23461	31584	32693	32504	36663	44641	53313	69929	71395	88998	91903	
Real rev./staff member (\$1983) (18)	23461	27415	26963	24687	24173	28269	29756	46362	36496	28738	43763	
Other Financial Measures (\$ million)												
NZ Railways Corporation (1983 - 1990) :												
Cumulative SSP's & subsidies		95	181	251	337	421	470	470	470			
Cumulative interest & financial charges		18	42	73	111	157	231	406	440			
Cumulative severance costs		0	0	0	0	41	98	188	236			
Cumulative operating profit (loss)		42	85	88	80	56	39	(2)	11			
Cumulative net profit (loss)		24	48	28	(18)	(129)	(277)	(610)	(608)			
Cumulative fixed assets purchases		106	192	280	429	561	700	832	972			

Notes:

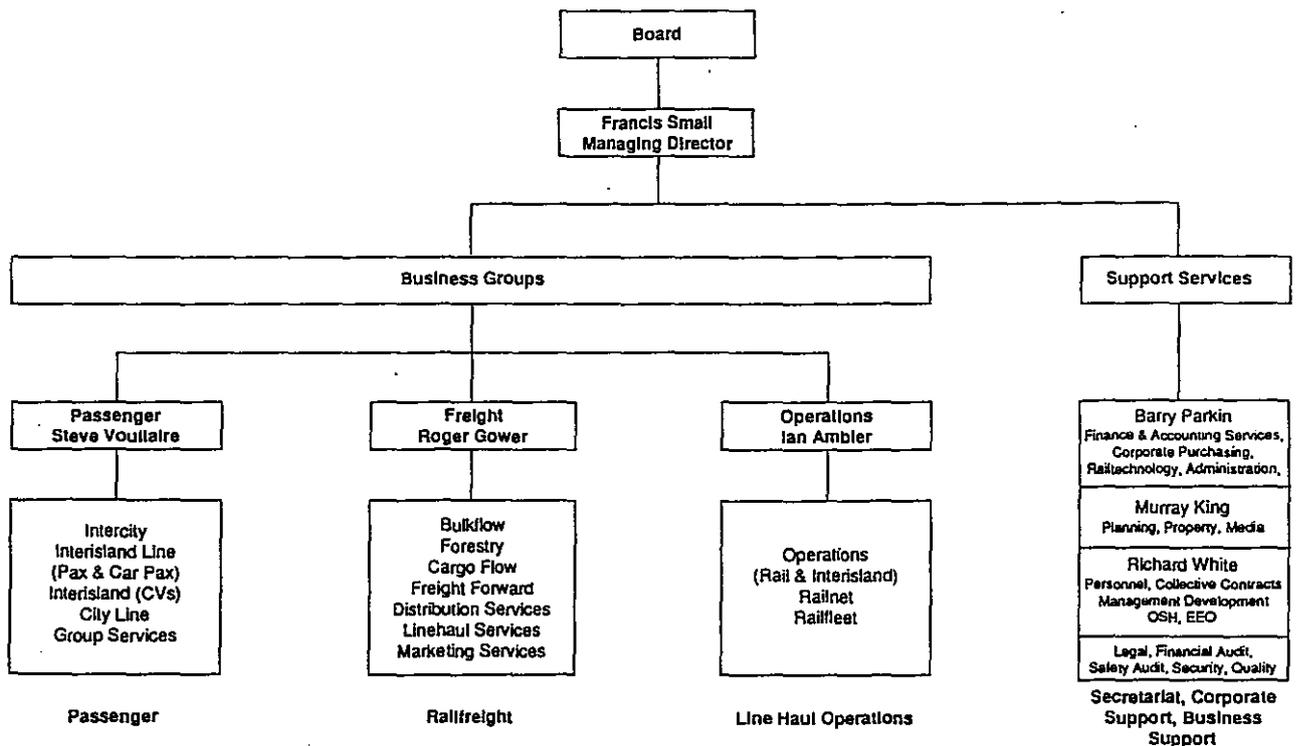
(These ratios are derived from the data provided in Appendix 3 using the following formulae):

- (1) = current assets/current liabilities
- (2) = (current assets - inventory)/current liabilities
- (3) = total debt/total assets
- (4) = total debt/shareholders funds
- (5) = long term debt/shareholders funds
- (6) = operating profit (loss)/total financial charges
- (7) = sales revenue/inventory
- (8) = sales revenue/fixed assets
- (9) = sales revenue/total assets
- (10) = debtors/(total sales revenue/365 days)
- (11) = operating profit (loss)/sales revenue
- (12) = net profit (loss)/sales revenue
- (13) = net profit (loss)/total assets
- (14) = net profit (loss)/shareholders funds
- (15) = freight by distance/staff numbers (converted to an index, 1989 & 1991 figures adjusted (pro-rated) to 12 month periods for comparative purposes). Note this is an indicative index only as staff numbers have not been adjusted to exclude non-freight staff.
- (16) = personnel costs/operating costs
- (17) = total revenue/staff numbers
- (18) = total revenue with CPI inflation (excl. GST) removed/staff numbers (expressed in constant 1983 dollars)

APPENDIX 5
NEW ZEALAND RAILWAYS CORPORATION
 ORGANISATIONAL STRUCTURE - 1982

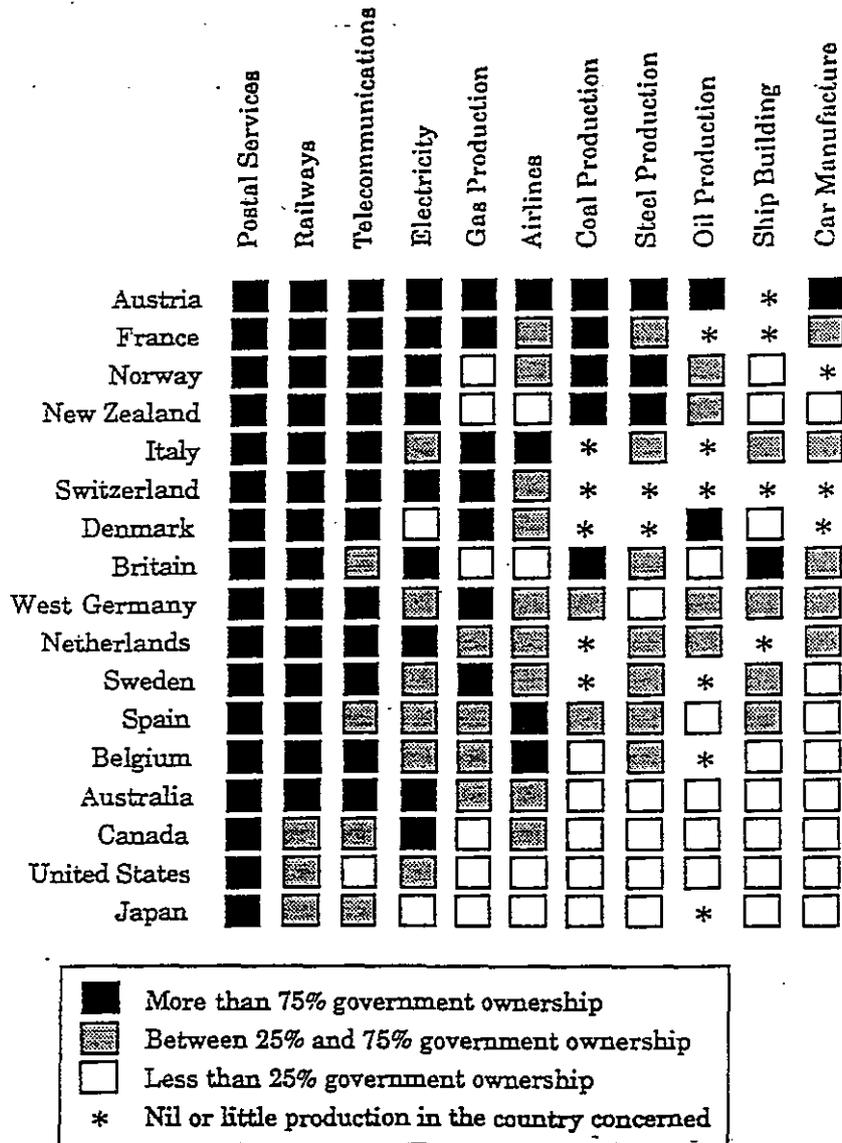


NEW ZEALAND RAIL LTD
 ORGANISATIONAL CHART - 30 OCTOBER 1992



APPENDIX 6

Ownership of Industries in Selected OECD Countries, December 1988



Source: Industries Assistance Commission Draft Report, In: Mascarenhas (1992, p387)

THE GSBGM WORKING PAPER SERIES

The main purpose of this series is to reach a wide audience quickly for feedback on recently completed or in progress research. All papers are reviewed before publication.

A full catalogue with abstracts and details of other publications is available, for enquires and to be included in our distribution list, write to:

The Research Co-ordinator,
GSBGM, Victoria University of Wellington,
PO Box 600, Wellington, New Zealand
Tel: (04) 495 5085; Fax: (04) 712 200

Code in bold denotes order number, eg: **WP 1/91**

--- Group denotes the author's academic discipline Group (note this does not necessarily define the subject matter, as staff's interests may not be confined to the subjects they teach).

Pre-1991 titles available on request.

WP 1/91 **Economic History Group**
Keith Rankin 'Gross National Product Estimates for New Zealand; 1859-1939.' 1991 Pp 27

WP 2/91 **Public Policy and Economics Group**
Sylvia Dixon 'Cost Utility Analysis in Health Policy.' 1991 Pp 43.

WP 3/91 **Accountancy Group**
Paul V. Dunmore 'A test of the effects of changing information asymmetry in a capital market.' 1991 Pp 34.

WP 4/91 **Economics Group**
Lewis Evans 'On the Restrictive nature of Constant Elasticity Demand Functions.' 1991 Pp 20.

WP 5/91 **Information Systems Group**
David G. Keane 'How senior executives think and work: implications for the design of executive information systems.' 1991 Pp 9.

WP 6/91 **Economics Group**
Hall, V.B. and R.G. Trevor 'Long run equilibrium estimation and inference.' 1991 Pp 29

---- 'Long run equilibrium estimation and inference: a non-parametric application', forthcoming in P.C.B. Phillipps (ed.) *Models, methods and applications of econometrics: essays in honour of Rex Bergstrom* Oxford: Basil Blackwell 1992

WP 7/91 **Economics and Public Policy Groups**
Williams, Michael, and G. Reuten 'Managing the Mixed Economy: The Necessity of Welfare Policy' 1991 Pp 23.

WP 8/91 **Management Group**
Brocklesby, J; S. Cummings and J. Davies 'Cybernetics and organisational analysis; towards a better understanding of Beer's Viable Systems Model.' 1991 Pp 27

WP 9/91 **Accountancy Group**
Firth, Michael and Andrew Smith 'The selection of auditor firms by companies in the new issue market.' 1991. Pp 22.

---- 'The selection of auditor firms by companies in the new issue market.' Forthcoming *Applied Economics* Vol 24 1992

WP 10/91 **Economics Group**
Bertram, I.G. 'The rising energy intensity of the New Zealand economy.' 1991 Pp 45.

WP 11/91 **Economics Group**
Hall, V.B. 'Long run concepts in New Zealand macroeconomic and CGE models' 1991 Pp 22.

WP 12/91 **GSBGM**
Cartner, Monica 'An analysis of the importance of management research topics to academics and chief executives in New Zealand and Canada' 1991 Pp 11.

WP 13/91 **Economics Group**
McDermott, John 'Where did the robber barons and moneylenders meet? A time series analysis of financial market development.' 1991 Pp 31.

WP 1/92 **Money and Finance Group**
Burnell, Stephen J. and David K. Sheppard 'Upgrading New Zealand's competitive advantage: a critique and some proposals.' 1992 Pp 26.

WP 2/92 **Quantitative Studies Group**
Poot, Jacques and Jacques J. Siegers 'An economic analysis of fertility and female labour force participation in New Zealand.' 1992 Pp 27.

WP 3/92 **Money and Finance Group**
Lally, Martin 'Project valuation using state contingent claim prices.' 1992 Pp 9.

WP 4/92 **Economics Group**
Kim, Kunhong, R.A. Buckle and V.B. Hall 'Key features of New Zealand Business Cycles.'

WP 5/92 **Management Group**
McLennan, Roy 'The OD Focus Group: A versatile tool for planned change.'

WP 6/92 **Information Systems Group**
Jackson, Ivan F. 'Customer-oriented strategic information systems.'

WP 7/92 **Quantitative Studies Group**
Krawczyk, Jacek B. and Boleslaw Tolwinski 'A cooperative solution for the three-nation problem of exploitation of the southern blue tuna.'

WP 8/92 **Marketing Group**
Thirkell, Peter and David Stewart 'A description of the advertising and direct marketing decision processes of New Zealand marketing managers.'

WP 9/92 **Quantitative Studies Group**
Jorgensen, H.P. and J.B. Krawczyk 'Application of optimal control to the determination of an environmental levy.'

WP 10/92 **Economics Group**
Kim, Kunhong 'A stochastic overlapping generations real business cycle model of a small open economy'

WP 11/92 **Quantitative Studies Group**
Wu, Ping X. 'Testing fractionally integrated time series.'

WP 12/92 **Quantitative Studies Group**
Wu, Ping X. 'A test for fractionally integrated time series.'

WP 13/92 **Quantitative Studies Group**
Nijkamp, Peter and Jacques Poot 'Endogenous technological change, innovation diffusion and transitional dynamics in a nonlinear growth model.'

WP 14/92 **Management Group**
Cavana, R.Y. 'Railway system in New Zealand: Case study in strategic change.'