

This research paper was commissioned by the Canada Transportation Act Review. It contains the findings and opinions of the author(s) and does not necessarily represent the views of the Review Panel or its members.

The Effectiveness of the Canada Transportation Act Framework in Sustaining Railway Capital Spending

Research conducted for the Canada Transportation Act Review

Report prepared by
The Conference Board of Canada

March 2001

The Effectiveness of the CTA Framework in Sustaining Railway Capital Spending

Submitted to the
Canada Transportation Act Review Panel

by
The Conference Board of Canada

March, 2001

INTRODUCTION	1
PART I: REGULATORY AND LEGISLATIVE INFLUENCES ON THE SUPPLY AND DEMAND FOR CAPITAL	2
I.1 Unique character of the freight railways' demand for capital compared to other modes of transport	2
I.2 Legislative and Regulatory Impact on Railway Capital Funding	4
PART II: PAST FINANCIAL REQUIREMENTS AND CAPITAL EXPENDITURES	15
II.1 Analysis of past railway capital Spending	15
II.2. How railways fund their capital spending	17
PART III: FUTURE CAPITAL REQUIREMENTS	20
III.1 Forecast for Future Need for Rail Freight Transportation Services	20
III.2 Future Capital Spending Requirements	31
PART IV: FUNDING FUTURE CAPITAL SPENDING	33
IV.1 Assessing the Attractiveness of Canadian Class 1 Railroads to Investors	33
IV.2 Revenue Projections for the Railways	38
IV.3 Railways Capacity to Fund Future Capital Requirements	39
PART V: CURRENT AND FUTURE LEGISLATIVE INFLUENCES ON THE SUPPLY AND DEMAND OF CAPITAL FOR FREIGHT RAILWAY INDUSTRY	41
V.1 Current Legislation	41
V.2 Future Legislation	41
PART VI: CONCLUSION	45

Introduction

Canadian railways have formed the backbone of the national transportation system since shortly after Confederation in 1867. In more recent years they have faced increasingly strong competition from other modes of transport, such as road and air, which have advantages of speed and/or flexibility. However, the Canadian railways retain considerable advantages in terms of the transportation of bulk commodities and have the potential to be competitive in terms of speed and flexibility if they can make the necessary capital investments. This paper addresses the capital requirements of the Canadian Class 1 freight railroads in the context of the likely demand for rail based transportation services, the investments required to meet those demands, and the ability of the railroads to finance this investment either from their own resources or through access to financial markets.

This paper is divided into six parts. The first part examines the past and present regulatory influences on the supply and demand for capital by the railways. The section begins by looking at the unique character of the freight railways' demand for capital compared to other modes of transport. The second part examines past capital requirements and spending by the freight railways. Part three is a projection of future capital requirement needs of the railways. The projection is based on three components: The Conference Board of Canada's five-year forecast for the demand of rail freight transportation services; a literature review; and consultation with experts in the industry and information from railway management. Part four looks at how the railways will fund future capital spending. This is done by generating revenue projections based on the five-year forecast and assessing the attractiveness of Canadian Class I railways to investors. The fifth section examines how future capital spending could be affected by the current legislation and some of the proposals for changing the legislation. The sixth part is a brief conclusion.

Part I: Regulatory and Legislative Influences on the Supply and Demand for Capital

I.1 Unique character of the freight railways' demand for capital compared to other modes of transport

Freight railways are unique among the major transportation systems in that they are responsible for their own infrastructure. Railways build and maintain their rights-of-way, traffic control and signals, yards, and other infrastructure. Road, marine and air based transportation systems do not maintain their own infrastructure; however they do pay a variety of charges (direct and indirect) for the use of publicly supported facilities such as terminals (airports, ports), and for rights-of-way (roads, channels and air navigation).

The question remains whether the taxes and fees paid by airlines, ship operators, and truck companies are sufficient to cover their fair share of the fixed (capital) and variable (maintenance) costs for the use of the infrastructure. If not, they are the recipients of an implicit indirect subsidy from government that is not available to the railways. This paper does not address the issue of the relative degree of subsidisation. However, the issue is one that is critical for the long term prospects for the rail sector, and one on which the financial markets will make their own judgement if the railways seek to fund a significant part of their capital requirements through the market.

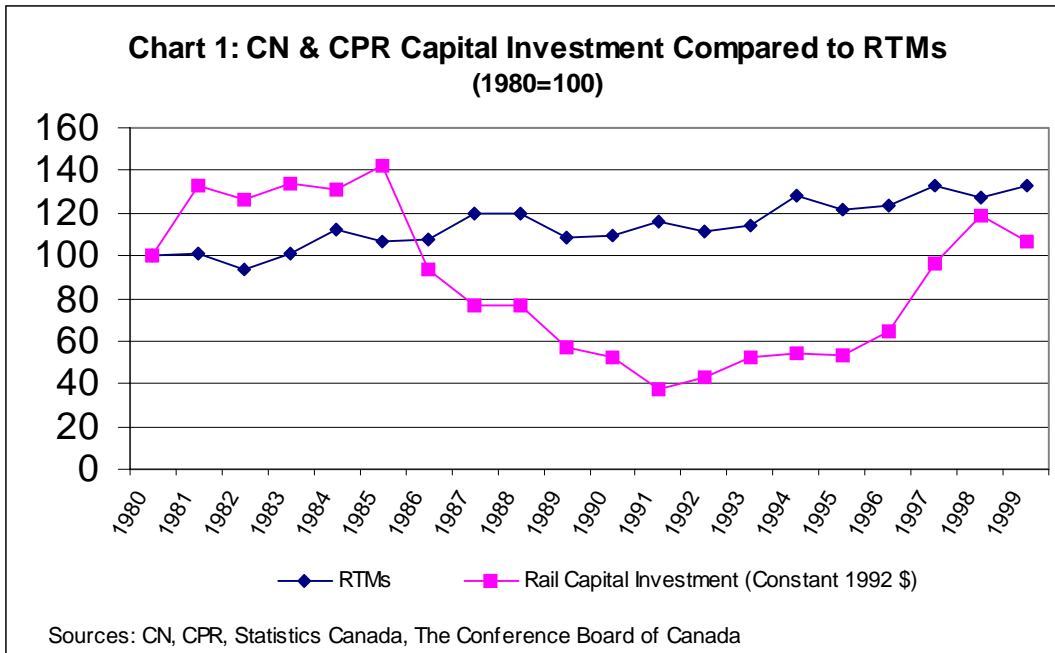
Aside from the subsidisation issue, the fact that the railways are directly responsible for their own infrastructure has a number of implications for their capacity to compete with the rival modes of transportation. Railways own their infrastructure, have significant economies of density and the possibility to attain economies of scope.¹ Economies of density mean that the more traffic that can be moved on any route, the lower will be the average costs. They are subject to declining costs with respect to traffic volumes over a network of fixed size. Scope economies arise from the multi-product nature of the industry. Typical of sectors with significant economies of scale and scope, railways improve their productivity as they expand their market share. Conversely, a decline in market share tends to be accompanied by a reduction of productivity, leading to a potentially rapid decline in competitiveness if volumes begin to decline.

Like other modes of transportation, railways price differentially where the price paid by the shipper/passenger reflects the interaction of marginal revenue and marginal cost for distinct market segments. Marginal revenue is determined on the demand elasticity for the service in each market segment. Demand elasticity, in turn, depends on the degree of substitution available to the shipper (e.g. movement by rail or truck) and the type of movement (e.g. low unit volume, short notice shipments pay a higher share of costs than shipments with high unit volumes and significant advance notice).

Unlike other modes of transportation, the fixed assets of railways (e.g. rail, ballast, signal system) cannot be easily or quickly redeployed to meet changes in demand. As the pattern of economic activity within the country shifts, the railways can be left with stranded assets that were positioned to service transportation demands from areas or sectors in relative decline.

The high capital intensity of railroads implies that there is a significant lag between capital investment and changes in carrying capacity. As a result, capital investment programs for the railways are necessarily multi-year exercises. The railways can continue to carry substantial volumes of freight in spite of a long period of underinvestment. The decline in the capital stock takes years to become obvious in the productivity and capacity of the railroad. Conversely, an increase in capital spending can take years to be reflected in improved productivity and increased carrying capacity. On a year-to-year basis, volume carried has little relation to capital invested (see Chart 1, next page). It should also be noted that large-scale infrastructure projects like double tracking or the Rogers Pass tunnel project tend to lead to large incremental gains in capacity.

¹ Norman Bonsor, *Rail Access Regimes: Relevance to the Canadian Rail Sector*, Prepared for the Van Horne Institute Symposium on Competition and Access in the Rail Industry, Saskatoon, September 16, 2000.

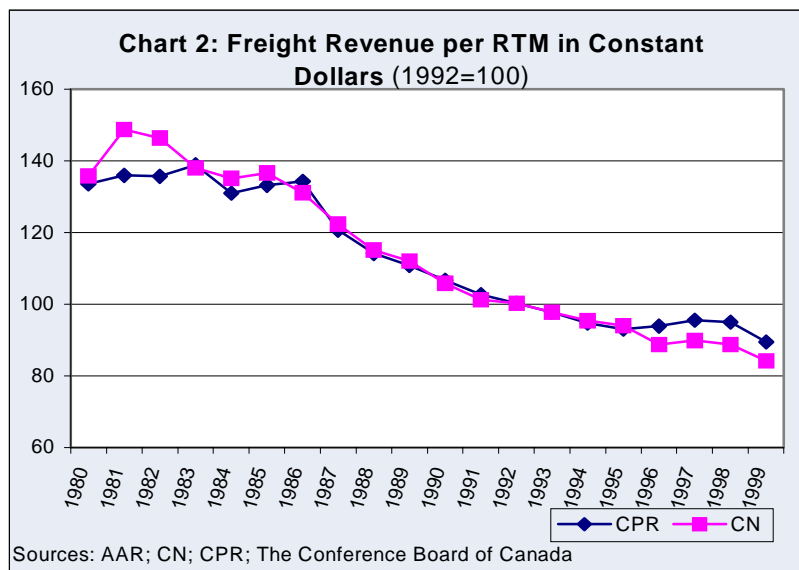


I.2 Legislative and Regulatory Impact on Railway Capital Funding

The regulatory and legislative environment is a key determinant of both the demand for capital by the sector, and the attractiveness of the sector to existing and potential investors. This section reviews the regulatory environment, beginning with the National Transportation Act, 1987.

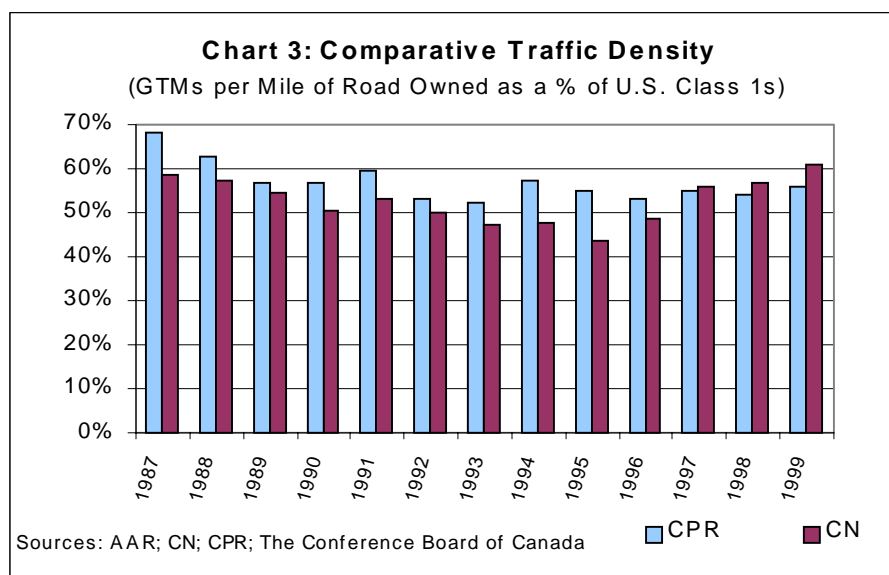
National Transportation Act, 1987

There is a strong correlation between railways' capital spending requirements and the changes



that were introduced by the National Transportation Act, 1987 (NTA '87). The NTA '87 was a partial easing of the regulatory environment. It gave the railways increased freedom to set prices but it limited their capacity to restructure their operations. The result was lower average rates as the railways priced in response to competition from other railways (intramodal competition), as well as other modes of transportation (intermodal competition) and the world price of the product being shipped (product and geographic competition) (see Chart 2).

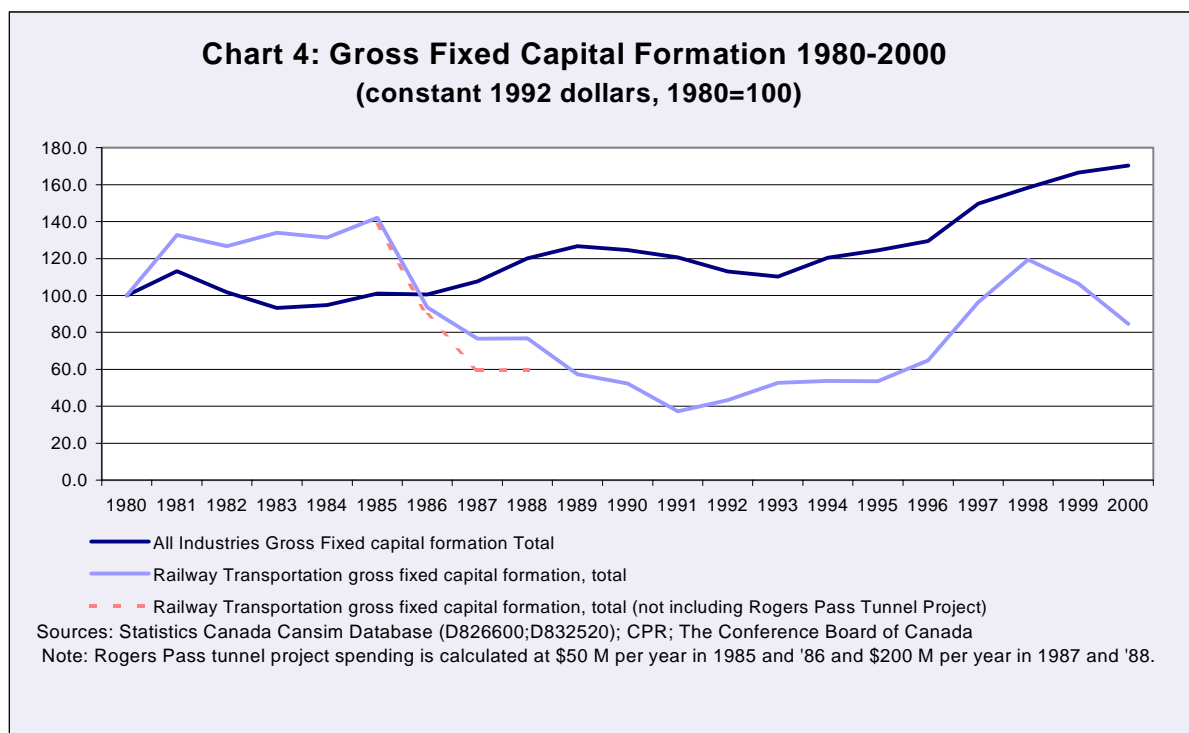
By the early 1990s, CN and CPR began to encounter severe financial turbulence—financially squeezed on the revenue side by declining prices and a severe recession, and unable to cut costs by quickly exiting unprofitable lines. In the United States, the Staggers Act permitted the railways to reduce lines to match declines in revenue. In Canada, the NTA '87 created a cumbersome process for line discontinuance or transfer, requiring railways to demonstrate financial loss or the absence of public need. The National Transportation Act Review Commission explained the regulator’s difficulty in trying to make both a commercial decision and a public interest decision and the fact that determining costs for a particular line created an “adversarial costing inquiry” for each rail abandonment case.²



² National Transportation Act Review Commission, *Competition in Transportation: Policy and Legislation in Review*, Volume 2 (Ottawa: 1993), p. 176.

Consequently, CN & CPR's traffic density, as compared to American Class 1s counterparts, plummeted. CPR's level of traffic density was as low as 52 per cent of U.S. Class 1s (in 1993) and CN's was 43 percent in 1995 (see Chart 3). By 1993, the traffic density situation was so desperate, especially in eastern Canada, that CN and CP initiated talks to merge the operations of east of Thunder Bay, and CP offered to purchase CN's eastern operations.

Traffic density became a major financial issue for CN and CPR. As capital investment for the railways was significantly below the industry average during the entire period NTA '87 was in effect (see Chart 4)—railway spending (in 1992 dollars) went from \$917 million in 1987 to a low of \$447 million in 1991.



Privatisation of CN, November 1995

A major policy development, which signalled a change in the federal government's approach to the rail sector, was the privatisation of CN in November 1995. The *CN Commercialisation Act* of July 13, 1995 enabled CN to become an investor owned company, with no explicit limits on who (Canadian or foreign) could own shares in the company. The Act did, however, ensure that CN would be widely held, setting a 15 per cent limit on the ownership of the stock by any one shareholder. Foreigners (mostly Americans) now hold about 65 per cent of CN shares.

The sale of CN to private shareholders was well received, raising about \$2.2 billion for the Government of Canada. Prior to the sale, the government forgave approximately \$900 million of CN's long-term debt and another \$500 million was raised towards CN's debt through the sale of non-core assets like the CN Tower, AMF Technotransport, and CN Exploration. With these transactions, CN's long term debt went from \$2,433 million in 1994 to \$1,313 million in 1995.³

The orientation of CN began to change as privatisation approached. When the federal government was the only shareholder, the company necessarily gave priority to public policy goals over achieving an adequate level of financial performance. The privatisation created strong incentives for CN management to run the railway as a profitable business rather than as a quasi-governmental organisation. CN management implemented dramatic changes to improve productivity and cut costs. Aside from the change in management orientation, the price signals faced by CN management prior to privatisation were different than those of CPR. As a Crown Corporation, CN had a lower cost of capital because the Government of Canada guaranteed its debt. After privatisation, CN needed to address issues such as rate of return relative to cost of capital. CN now also had to pay income taxes.⁴

³ CN 1995 Annual Report.

⁴ CN was a commercial Crown Corporation required to pay income taxes, but since they did not make a profit they paid no taxes.

The privatisation of CN also affected how CPR runs its operations. On the one hand, it became somewhat easier for CPR to seek changes for goals common to the managements of both railroads, such as negotiating productivity improvements with the labour unions.⁵ On the other hand, CPR management now faces direct competition from a revitalised company intent on making efficiency improvements and raising its service commitments.

Abolition of rail transportation shipper subsidies, 1995

The other critical change to the operating environment of the railways in 1995 was the abolition of most shipper subsidies (see Table 1, next page). The end of these subsidies gave further evidence of the federal government's intention to distance itself from direct involvement in the management of the rail sector.

- The ratio of subsidies to total rail revenues decreased from 15 per cent in 1993/94 to 4 per cent in 1997/98. Of that 4 per cent, four-fifths went to VIA Rail.⁶
- Subsidies to Prairie grain farmers under the Western Grain Transportation Act (WGTA) and to shippers located in Atlantic provinces and Eastern Quebec under the Atlantic Region Freight Assistance (ARFA) were terminated in 1995/96.
- Subsidies for the maintenance of uneconomic branch lines were also terminated.

Table 1: Federal Subsidies, Grants and Contributions for Rail Freight							
(Millions of dollars)							
	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
WGTA	633	644	209.8	-	-	-	-
ARFA	9.4	9.3	2.2	-	-	-	-
Branch Lines	15.3	17.4	9.7	-	-	-	-
Hopper Cars ¹	17.8	19.1	18.2	17.1	19	21	21

⁵ In 1986 CN management gave its unionized employees lifetime employment guarantees which CPR was compelled to match. But in 1995 both CN and CPR were seeking significant changes to collective agreements that caused a strike and/or lockout in the spring of that year.

⁶ Transport Canada, *Transportation in Canada 1998: Annual Report*, p. 27.

Grade	n/a	n/a	8.2	7.4	7.5	7.2	7.5
Crossings							
Other	n/a	n/a	4.4	1.8	1.6	1.8	1.4
<i>Total</i>	<i>675.5</i>	<i>689.8</i>	<i>252.5</i>	<i>26.3</i>	<i>28.1</i>	<i>30</i>	<i>29.9</i>
¹ Hopper car payments reflect long-term leases. Source: Transport Canada, <i>Transportation in Canada 1998 & 1999: Annual Reports</i> .							

The mid 1990s were the first time since 1927 that the Canadian government had not paid some form of substantial subsidy to freight railways or rail shippers.

In the new more competitive environment, Canadian Pacific also chose to restructure itself, making the railroad (Canadian Pacific Railroad) a subsidiary of the holding company (Canadian Pacific Ltd.) and positioning the other assets (hotels, shipping, oil & gas exploration, and coal) as sister companies. In February 2001, CP Ltd. announced that CPR and the sister companies would become independently traded entities.

Canada Transportation Act (1996)

The Canada Transportation Act of 1996 (CTA) continued the thrust of the NTA '87, prices continued to be largely deregulated and subject to confidential contracts. The CTA made it more difficult for shippers to seek regulated remedies for compulsory interswitching and access to competitive line rates (CLRs).⁷

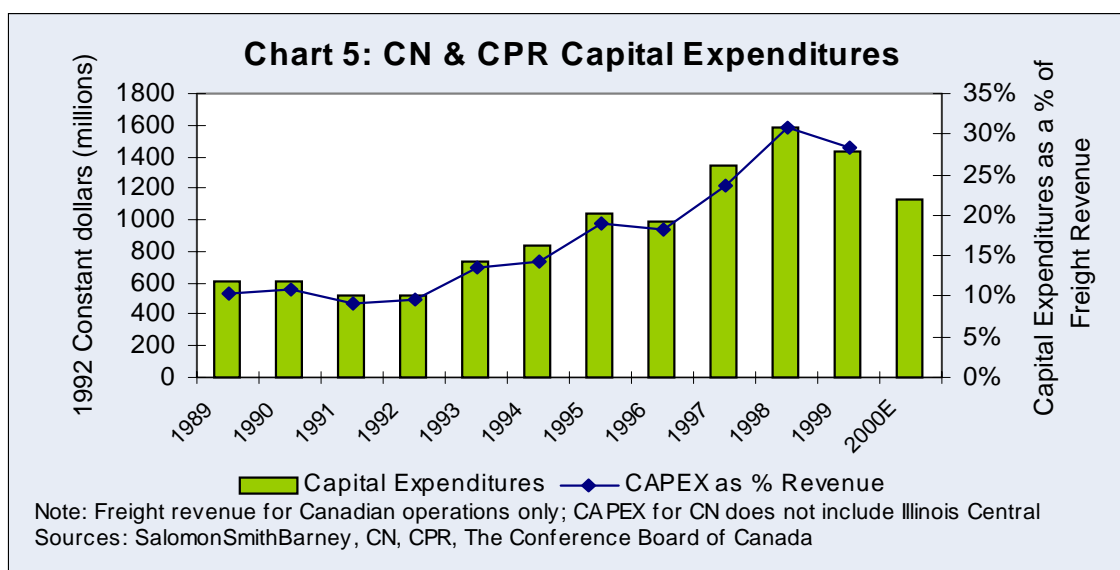
It was on the cost side that there was a significant change from the imbalance which had existed in NTA '87, with a substantial regulatory reform on the rules covering market exit. The CTA recognised that line discontinuance and the purchase of a line by a shortline railway should be a business decision rather than a public interest decision made by the regulator. The Act provided

⁷ A shipper can seek recourse for CLRs and extended interswitching (beyond the 30km limit) if it can establish that it would suffer “substantial commercial harm” if the relief sought were not granted. In addition, the CTA eliminated “public interest” appeals regarding whether or not the actions by the railways were prejudicial to the public interest. Under the NTA '87, a shipper could ask the regulator to investigate whether certain rail rates were prejudicial to the public interest. Final Offer Arbitration is still available to shippers for all rate, with minor exceptions.

a relatively easier process for line sale and abandonment.⁸ As a result, CN and CPR took steps to improve their traffic density by shedding excess rail lines (see Table 2).

	CN	CPR
Change in Miles of Road Owned	-46%	-33%
Change in Gross Ton Miles (GTMs)	11%	6%
Change in Traffic Density (GTMs/ Miles of Road)	72%	25%
Change in Traffic Density as a percent of the average of U.S. Class I's in 1995 and 1999	43% to 61%	55% to 56%

Sources: AAR; CN; CPR; The Conference Board of Canada



The CTA created a regulatory climate that was sufficient to encourage the railways to undertake significant new capital investments. Average annual capital expenditures (in 1992 constant dollars) for CN and CPR was \$1.477 billion for 1997-99 period, almost double that of the 1989-96 period which averaged \$737 million. Also for the 1997-99 period capital expenditures as a

⁸ The CTA introduced a streamlined rail line discontinuance process that does not involve public hearings, and the Agency is no longer required to order line abandonment. In addition, the new owner/operator (shortline) railway that remains within federal jurisdiction does not require any regulatory approval other than a certificate of fitness based on the maintenance in good standing of liability insurance.

percentage of revenues averaged 28 per cent annually compared to 13 per cent for the 1989-96 period (see Chart 5). The level of capital investment undertaken by the railroads in the 1997-2000 period was sufficient to begin offsetting the deterioration of their capital stock which had occurred over the previous decade.

Grain Legislation

Special legislation has governed the movement within Canada of grain by railways destined to export markets for over a century. The present legislation was enacted on July 26th, 2000. *An Act to Amend the Canada Transportation Act*, otherwise known as Bill C-34, contained three major points:

- the establishment of a revenue cap that provides for an annual estimated \$178 million reduction in railway revenues, which represents an estimated 18 per cent reduction in grain freight rates from 2000–2001 levels;

- the phase in of Canadian Wheat Board (CWB) tendering for logistical services for grain shipments through the ports of Vancouver, Prince Rupert, Thunder Bay and Churchill, from at least 25 per cent of their volume in 2000–2001 to a minimum of 50 per cent in 2002–2003; and

- amendments to the *Canada Transportation Act* (CTA) to facilitate the transfer of branch lines to community-based shortlines and to simplify the Final Offer Arbitration process.⁹

Bill C-34 was just the latest in a long string of policies favouring grain transportation that dates back to 1897 when the first version of the Crow Rate came into being. This regulation in favour of one commodity is, as far as we know, unique amongst network industries. How the special status of the grain sector affects the operations of the rail industry has been subject to two major reviews since 1998, overseen by Justice Estey and Mr. Kroeger. The regulations in favour of the grain sector go against the trend towards the regulatory environment emphasizing the primacy of price signals and market forces in business decisions.

⁹ Transport Canada News Release, “GOVERNMENT OF CANADA ANNOUNCES MEASURES TO IMPROVE

The revenue cap will have a negative effect on the attractiveness of the railways to future providers of capital investment. In the first place, it calls into question the government's commitment to moving towards a market driven system. Secondly, the anticipated \$178 million reduction in revenue which the changes impose on the railways is the equivalent of an imposed public duty without adequate compensation. The railways must compensate for those reduced revenues by doing one or more of the following in grain moving operations or elsewhere on the system:

- increasing productivity;
- reducing capital investment;
- reducing service.

Given that the grain elevator companies and the railways were asking for much less involvement of the Wheat Board in rail transport logistics, the opportunity to improve productivity in moving grains is likely limited. Nevertheless, the railways appear to be making efforts to increase productivity where they can. For instance, CPR introduced *MaxTrax* in November 2000 as an innovative approach to the weekly car allocation system used by the Car Allocation Policy Group (CAPG).¹⁰

If productivity gains cannot offset lower revenues, there will be a combination of three effects on capital spending. First, overall capital spending for the entire system could be reduced. Second, the railways could target capital spending reductions to the grain sector. Third, capital spending could be maintained, but non-grain shippers would have to pay higher rates to compensate for the lost revenues from grain transportation. It should be noted that Mr. Kroeger pointed out that regulated grain revenues must be enough to create reasonable economic returns. Mr. Kroeger stated:

WESTERN GRAIN HANDLING AND TRANSPORTATION SYSTEM," May 10, 2000.

http://www.tc.gc.ca/releases/nat/00_h034e.htm

¹⁰ *MaxTrax* offers discounts of up to 35 per cent off the rate that had been applied under the former tariff and rate scale. The bigger the car block and the longer in advance the booking is made, the greater the discount. At the same time, the *MaxTrax* program requires commitments from the railway and shippers, with clearly established penalties for failures by either party.

“If the railways are to invest in future system improvements, grain must offer them returns commensurate with those of other products. Otherwise, investments in grain transportation would undoubtedly be given a lower priority, with the result that efficiency would decline in future years. An example of what could happen is provided by the last two decades or so of the Crow Rate, when the railways were seriously under-compensated for carrying grain: a major deterioration of the system resulted, and governments had to assume responsibility for investments that would otherwise have been made by the railways.”¹¹

An indirect effect of the mandated revenue cap is the signal it sends to equity and bond markets about government intervention in the rail system. Equity analysts have expressed reservations about the fact the present legislation did not allow adequate productivity offsets for the railways to adjust to the revenue cap. Perhaps more importantly, some of the analysts point to the negative consequences on raising capital.

“This regulatory change [Bill C-34] imposed on the railroads would send a negative message, particularly to investors outside Canada. It would increase uncertainty about the future changes which could be imposed on the industry and would raise the risk profile of companies. This could lead to an increase in their cost of capital.”¹²

Taxes

The railways have long argued that they face taxation inequities relative to other modes of surface transportation and with U.S. railways. There are tax inequities both for input taxes and capital cost allowances. The railways say that taxes on rail inputs are 50 per cent higher for Canadian railways than in the U.S.; and the overall tax burden for Canadian railways is 13.8 per cent of revenue compared to 7.5 per cent of revenue in the United States.¹³ Canadian trucks pay over 7.9 percent of their revenue in input taxes.¹⁴ The current depreciation rate in Canada is at

¹¹ Arthur Kroeger, Letter to The Honourable David M. Collenette, Minister of Transport, September 29, 1999.

¹² Robert Fay & Matthew Janisch, “PanCanadian Stock Price More Than Offsets CP Rail’s Grain Revenue Impacted by Proposed Regulatory Changes,” *BMO, Nesbitt Burns* Research Comment, May 15, 2000.

¹³ Submission by the Railway Association of Canada (RAC) to the Budget Consultation, (Federal) Standing Committee on Finance, September 1, 2000.

¹⁴ Input taxes as a percent of revenues is used by the RAC in the above submission were based on a 1997 survey by KPMG. Given the much higher fuel prices, we can assume that for all modes of transportation, the input tax burden will have changed due to higher fuel taxes and other public policy modifications (i.e. several provinces have lowered their provincial fuel taxes for railways and property taxes for railway rights-of-way).

15 per cent for locomotives and rolling stock, but the Railway Association of Canada says a 30 per cent rate is needed to keep pace with the United States.¹⁵ As it stands now, the tax depreciation period for capital investments for locomotives and rolling stock is 16 years for Canadian railroads, compared to just eight years for American railroads.¹⁶

The indirect effect of different tax regimes for rail freight transportation in Canada and the United States is the potential to put Canadian shippers at a disadvantage to American shippers. All things being equal, the higher tax rates paid by Canadian railways will ultimately lead to higher prices for rail service and/or poorer rail service than would be available in the United States. Higher prices would occur due to higher input costs, and poorer service could result from, among other things, not having the latest freight car technology or enough reliable locomotive power to meet the needs of shippers.

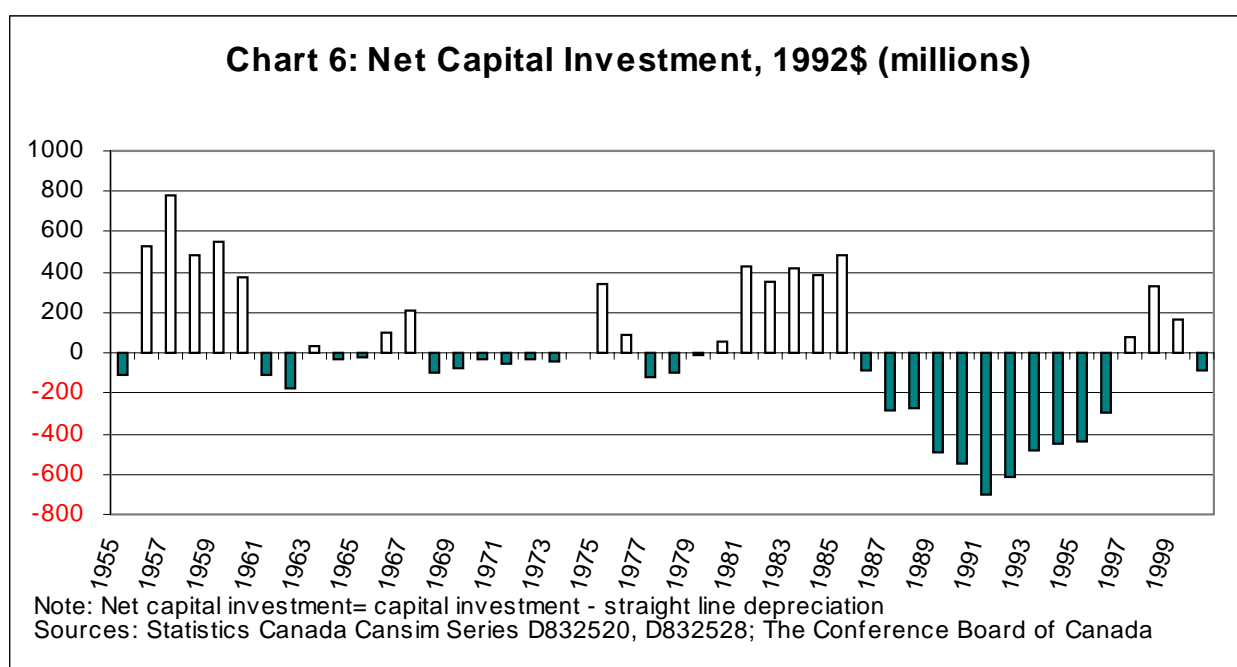
¹⁵ Submission by the Railway Association of Canada to the Budget Consultation, (Federal) Standing Committee on Finance, September 1, 2000.

¹⁶ Anecdotal evidence also suggests that faster depreciation of locomotives by Class I railways, makes for much better (newer) second-hand locomotives that are typically purchased by short-line railways--Based on the author's conversation with Thomas Payne, founder of the Central Western Railway, December, 1998.

Part II: Past Financial Requirements and Capital Expenditures

II.1 Analysis of past railway capital Spending

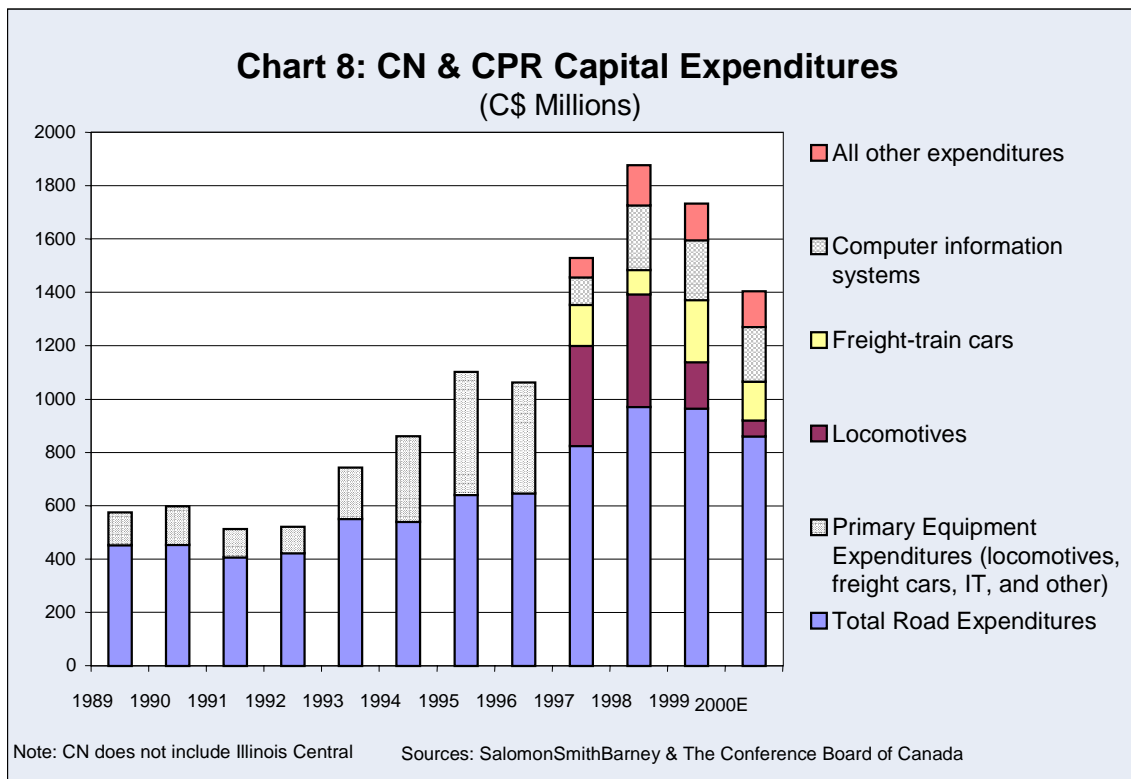
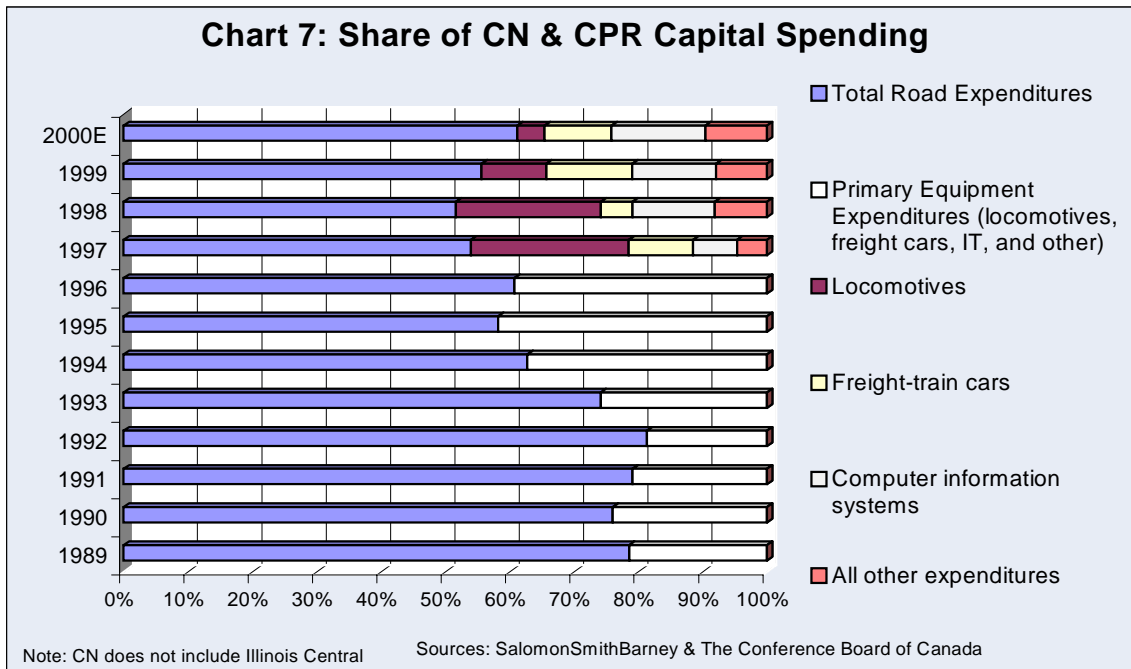
Net capital investment (NCI)¹⁷ for the Canadian railways has been negative more often than positive over the last 40 years and was strongly negative for the decade between 1985 and 1995 (see Chart 6). In 1991 the capital investment in the Canadian railroads was \$700 million less than the level needed to maintain the existing capital stock. Between 1955 and 2000 gross capital investment was less than the depreciation for 27 out the 46 years (the annual straight-line depreciation rate is about 5% of existing capital stock). Canadian railways need to invest about



\$1 billion (1992 constant dollars) per year just to cover the depreciation of their assets.

When capital spending is curtailed, investment in primary equipment (locomotives, information technology, rolling stock, etc.) is the first to feel the effect, road investment tends to decline less quickly. During the 1989 to 1993 period total road investment represented well over 70 percent of capital expenditures. By 1998 when the recent capital investment program spending hit its peak, road investment represented just 50 percent of the total capital expenditures, even though annual road expenditure were double that of the 1989-93 period.

¹⁷ NCI is calculated by subtracting straight-line depreciation from annual capital investment.



II.2. How railways fund their capital spending

The organisational changes of the mid 1990s by two major Canadian railroads signalled that a new era was dawning for the rail sector, one in which new possibilities were opening up which could substantially change the face of the Canadian transportation system. In 1998, Canadian National acquired Illinois Central, giving it access to the American industrial heartland. Negotiations to merge Canadian National and Burlington Northern (which would have created the largest and most extensive rail network in the continent) reached an advanced stage, failing in the end to get American regulatory approval.

Both the corporate restructuring (including the acquisition of Illinois Central) and the need to revitalise the railway capital stock made significant demands on the capacity of the railroads to fund their capital investment programs and their acquisitions. Both the Class 1 Canadian railroads met this challenge largely from their cash flow, rather than through access to the debt or equity markets.

Table 3: Debt to Capital Ratios* of North American Class 1 Railways

	1999	1998	1997	1996
CNR	40.8	45.0	29.4	33.0
CPR	41.3	34.8	37.5	n/a
Union Pacific	47.6	49.4	50.9	49.4
BNSF	41.6	41.2	43.7	44.1
CSX	51.8	52.2	53.5	47.0
Norfolk Southern	56.0	55.8	57.6	27.0

* long term debt over capital employed, at year end.

Source: Company Annual Reports, various issues

The last half of the 1990s was a period of historically low nominal interest rates and strong demand for quality equities. The major Canadian railroads made some use of financial markets during this period, but with caution and restraint that reflected their history of providing a weak rate of return on capital. The biggest single entry was into the debt market during the period was Canadian National's net C\$ 2 billion long term borrowing in 1998 to finance part of the cost of the acquisition of Illinois Central. However, Canadian National paid down its long term debt by over C\$1 billion (net) in the following year. The ratio of long term debt to the capital employed

of the two Canadian railways remains at or below those in their American competitors, reflecting a cautious approach to funding issues (see Table 3).

As a subsidiary, Canadian Pacific Railways used transfers from its parent company as a means of financing the peak year of its capital expenditure program (1998), and therefore did not have to directly tap the debt markets in a significant manner. With sufficient cash flow from other interests, Canadian Pacific Ltd also did not have to make access to debt markets on behalf of its subsidiary (see Table 4).

Table 4: Cash Flow, Canadian Pacific Railway

(C\$ millions)

	2000	1999	1998	1997	1996
<u>Cash for Investment Activities</u>					
• Capital Program	-571.2	-843.0	-1094.3	-858.0	-546.3
• Other Investment	34.3	-232.6	102.0	617.1	132.5
<i>Net Cash Required For Investment Activities</i>	-536.9	-1075.6	-992.3	-240.9	-413.8
<u>Cash From Operations</u>	676.6	672.9	679.9	748.0	385.1
<i>Cashflow less Investment</i>	139.7	-402.7	-312.4	507.1	-28.7
<i>Cash Coverage Ratio</i>	120.3%	79.8%	62.1%	87.1%	70.5%
<u>Dividends Paid</u>	-180.5	-150.0	0.0	-722.3	-1.2
<u>Financing Activities</u>					
• Net Equity (from affiliates)	1.5	14.2	15.3	0.0	57.4
• Net Change in LT Debt	598.9	214.9	-25.4	-9.3	-112.5
• Advances from (to) affiliates	-479.3	314.1	-90.0	442.2	-412.0
• Cash From Financing	121.1	543.2	-100.1	432.9	-467.1
<u>Change in Cash Position</u>	80.3	-9.5	-412.5	217.7	-497.0

Sources: CPR Financial and Statistical Summaries, CPR Annual Reports, 2000, 1999, 1998, 1997;

Table 5: Cash Flow, Canadian National Railway
(C\$ millions)

	2000	1999	1998	1997	1996
<u>Cash for Investment Activities</u>					
• Net Addition to Assets	-958	-936	744	609	291
• Illinois Central			-2608		
• Other Investment	-23	38	53	95	21
<i>Net Cash Required</i>	-981	-898	-3299	-514	-270
<i>For Investment Activities</i>					
<u>Cash From Operations</u>	1506	1278	1237	921	596
<i>Cashflow less Investment</i>	525	380	-2062	407	326
<i>Cash Coverage Ratio</i>	151.4%	136.5%	166.3%	151.2%	204.8%
<u>Dividends Paid</u>	-136	-118	-99	-78	-68
<u>Financing Activities</u>					
• Net Change in Equity	-501	779	13	16	11
• Net Change in LT Debt	-178	-1052	2046	-67	-293
• Other Financing	0.0	0.0	0.0	0.0	0.0
• Cash From Financing	-679	-273	2059	-51	-282
<u>Cash from (to)</u>				-20	10
<u>discontinued operations</u>					
<u>Change in Cash Position</u>	-290	-11	-102	258	-14

Sources: CN Investor Fact Book, 2000, 1998, 1997

Both Canadian class 1 railroads had sufficient cash flow during this period to finance the bulk of their capital investment programs. For Canadian National, the investment cash coverage ratio (cash from continuing operations, over the net capital formation) comfortably exceeded 100% during the entire period (see Table 5). Resort to the market was only required for the extraordinary expenditures associated with the purchase of Illinois Central. For Canadian Pacific, the cash coverage ratio (based on the capital program) was below 100%, especially during the peak spending year of 1998. However, CPR capacity to fund its capital requirements was backed by the substantial financial resources of the parent CP Ltd.

Part III: Future Capital Requirements

III.1 Forecast for Future Need for Rail Freight Transportation Services

In a nutshell, railway freight transportation volumes are forecast to stall this year, but return to healthy gains in the medium-term. The North American economy has slowed considerably in the last quarter of 2000 and will be sluggish for at least the first half of this year. The Asian economy is still weak, primarily because of major problems that continue to plague the Japanese economy. This outlook for 2001 does not bode well for Canadian shippers and will affect the performance of Canadian railways.

Total rail traffic is expected to slow down in 2001 due to weaker North American domestic demand, a weak Japanese economy, coalmine closures and a lacklustre agriculture outlook. Railway transportation is expected to post virtually no growth in traffic this year after a 4.3 per cent gain in 2000. Total rail traffic will be virtually the same as last year.

Stronger growth in the North American economy and the modest growth in the Asian economy over the 2002-05 period will lead to stronger medium-term growth for freight railway transportation. Between 2002 and 2005 total rail traffic will recover and rise on average by 2.9 per cent per annum, reaching 295.2 million tonnes by 2005.

Railway Transportation and the North American Economy

Canadian demand for goods and services grew by 5.7 per cent last year and will post 4.6 per cent growth in 2001. Consumer spending on non-durable goods will be quite strong this year while interest-sensitive items such as autos, housing, furniture and appliances will post weaker growth. Investments in plant and equipment are expected to expand although at a slower pace than last year. Overall, growth in Canadian demand for goods will mean increases in domestic railway transportation for such goods and associated materials. This expansion will continue over the medium term.

Why will Canadian consumers keep spending in 2001, even though the economic expansion will have slowed markedly? The answer is tax cuts. The federal mini-budget of November 2000, combined with spillover from the previous budget, will result in cuts of \$7.7 billion in personal income taxes in 2001. Such a boost in disposable income will allow consumers to maintain a healthy rate of spending despite significantly slower growth in the overall economy. Although rising disposable income will bolster consumer spending, a number of factors will keep consumer expenditures from matching last year's growth. These factors include the impact of high interest rates on demand for large-ticket durable items; slower employment growth; weakening consumer demand; and increased energy costs which have pushed up the consumer price index (CPI) rate of inflation and will eat into consumers' disposable income.

Plant and equipment investment spending growth in Canada is expected to fall back to more sustainable levels in 2001 after the whirlwind pace of recent years as the economy shifts into lower gear. In addition to a general cooling of overall economic growth, easing capacity utilization rates and slowing corporate profit gains also indicate that firms will not be spending at the same rapid rate as last year. Furthermore, a rapid build-up of inventories in recent months will have a dampening effect on investment plans as firms look to bring inventory-to-shipment ratios down to more normal levels. The rate of non-farm inventory investment is expected to fall by nearly two-thirds from \$8.8 billion in 2000 to \$3.1 billion in 2001. Nonetheless, inventory-to-shipment ratios are still at manageable levels while profits and utilization rates are not expected to show unduly dramatic declines in 2001. Therefore, the forecast calls for a moderation in growth this year and not a decline in plant and equipment investments.

Rail traffic for goods destined for the Canadian market should grow this year although at a much slower pace than last year. The higher growth in the Canadian economy in the 2002-05 period will bring stronger growth in rail traffic for shipments to Canadian markets during that period.

In the third quarter of 2000, the U.S. economy grew at an annualised rate of only 2.4 per cent, its slowest rate in four years. Signs of weakness surfaced in several areas of the economy. The hardest hit interest-sensitive sectors, such as housing and motor vehicles, continue to struggle.

Retail sales have stalled, consumer confidence has dropped, investment has slowed and labour markets have weakened.

There are actually concerns that the U.S. economy may be cooling down too fast. As a result, the Federal Reserve is implementing interest rate cuts that should have a positive impact starting later this year. Overall, real GDP in the United States is forecast to increase by 3 per cent in 2001, down from an estimated 5.1 per cent in 2000. As U.S. economic growth moderates in 2001, so will Canadian export activity. Export sectors directly associated with the troubled interest-sensitive sectors such as autos and housing, will take the biggest hits. Therefore, railway transportation of motor vehicles and wood products will drop this year.

Canadian exporters of autos and parts are in for a very bumpy ride in 2001 as they deal with a U.S. auto industry running out of gas. Motor vehicle markets in the United States are plagued with a glut of inventories that accumulated in the third quarter of 2000, when too many vehicles were coming off the assembly line and not enough people were buying them. Unfortunately, U.S. demand for automobiles is not expected to pick up anytime soon. It is estimated that more than 60 per cent of the households in the United States have bought a new car or truck within the last four years. As most households in the nation already have two cars sitting in their driveway, very few will be looking to buy a new car over the next couple of years. U.S. spending on autos and parts is forecast to drop by 5.5 per cent in 2001.

Wood products are expected to be hit hard by the slowdown in the United States. Conditions facing Canadian wood exporters are reminiscent of those plaguing the auto industry: weak U.S. housing demand combined with growing inventories. Wood exporters are already feeling the pain, as evidenced by low lumber prices. The market imbalance has pushed lumber prices to dangerously low levels, forcing some mills to shut down temporarily. Unfortunately, little relief is in sight for the U.S. housing market. After contracting by an estimated 4.8 per cent in 2000, U.S. housing starts are forecast to drop even more in 2001, by 10.5 per cent. Consequently, exports of wood are forecast to contract by 1.5 per cent in 2001. Exports of wood to the United States could be even worse than forecast considering the high risk of the trade conflict in the

softwood lumber industry further to the termination on March 31, 2001 of the *Softwood Lumber Agreement of 1996*.

Fortunately, not every export sector to the U.S. is expected to sink in 2001. Although U.S. investment in machinery and equipment is expected to slow in 2001, it will still be strong. Growth in investment in machinery and equipment in the United States is forecast to ease from 15.1 per cent in 2000 to 9.1 per cent in 2001. Likewise, the exports of machinery and equipment are forecast to slip to 5.3 per cent in 2001 from 10.3 per cent in 2000. Other commodities will also post some growth this year including chemical products, pulp and paper, metals and mineral products, etc. Therefore, in 2001 the railway sector will experience declines in the transportation of interest-sensitive products to the U.S. such as autos and wood products but will be offset by growth in exports to the U.S. of other commodities.

After this year's weak performance, the U.S. economy will regain strength in the 2002-2005 period with a recovery of interest-sensitive sectors, albeit the expansion will not be as strong as in the late 1990s. Other sectors of the U.S. economy will post solid growth in the medium-term as the economy expands, real disposable income grows, and profits recover. As a consequence, railway transportation of goods to the U.S. should do reasonably well in the 2002-05 period.

In summary, the economic activity in the U.S. and Canada is projected to slow down as the interest rate hikes of the last two years take their toll on aggregate demand. The performance in the overall Canadian industrial goods sector will weaken from a solid growth of 3.7 per cent in 2000 to 2.1 per cent growth in 2001. Railway traffic for goods other than coal and grains should follow the same trend. Over the 2002-2005 period, growth in the industrial sector will again accelerate, averaging close to 3.6 per cent annually, mainly reflecting continued strong domestic demand and a recovery in growth in the U.S. economy. Again we expect railway traffic for goods other than coal and grains to rise accordingly. As a result, railway traffic for goods other than coal and grains should reach 221.2 million tonnes in 2005.

Railway Transportation and the Asian Economy

Most countries in the Asia-Pacific region will record slower growth in 2001. Yet, when the troubled Japanese economy is removed from the mix, it is evident that the region will remain in pretty good shape, with real GDP growth slowing down from between 7 and 8 per cent to the 5–6 per cent range. Recent developments will leave the region in a better position to withstand the external shock posed by significantly slower growth in the United States than in 1998, when the global financial crisis led to a collapse in economic growth. Short-term foreign debt levels are more manageable and foreign exchange reserves are higher. Central banks have used strong current account surpluses to build up their reserves and pay down foreign debt.

The main danger posed to the Asia–Pacific region in 2001 remains high oil prices. While these have moderated recently, they continue to be volatile and susceptible to future OPEC-engineered production cuts. Apart from Indonesia and Malaysia, East Asia’s economies are major oil importers. High oil prices would reduce current account surpluses and cut into the profits of many over-indebted companies in the region. With economic growth set to taper off this year, the spectre of rising oil prices remains a serious threat.

A solid rebound in the economic fortunes of Japan would certainly boost the fortunes of the Asia–Pacific region. Unfortunately, this scenario is unlikely in 2001, as the Japanese economy grew by just 1 per cent in the second and third quarters of last year. Consumption, which accounts for 55 per cent of the economy, was flat in the third quarter. Since the collapse of the so-called bubble economy in the late 1980s, Japan has undergone three slowdowns with a fourth possible this year. The first came with the crash in stock and real estate prices in 1990–92, the second as a result of an overvalued yen in 1995 and the third followed the collapse of major financial institutions in 1998.

A strong recovery remains elusive for the Japanese economy because of the large and growing government debt. The debt began to grow in 1993, when the government’s annual budget went into the red for the first time in a decade, beginning a cycle of slower growth and tumbling tax receipts, followed by fiscal stimulus packages that failed to create a lasting recovery. Japan’s gross debt as a percentage of economic output is now 112 per cent, even higher than Italy’s.

Japan attempted to get its fiscal house in order in 1997 by cutting spending and increasing revenues. This turned out to be disastrous, as shrinking tax revenues and even faster growing debt nearly plunged the country into a depression. Boosting economic growth is often a more effective way of reducing debt, as an extra percentage point of economic growth can lead to a 1 per cent gain in tax revenue. Unfortunately, recent history shows that neither fiscal stimulus or rock bottom interest rates have been able to do the job.

Overall, the weakness of the Japanese economy is expected to continue and this will affect Canadian exports of commodities to that country. Other Asian countries, on average, will do better as they continue their expansion after the 1998 crisis. Canadian exports of commodities to that region of the world will suffer from the weak Japanese economy and the strong competition from other countries in closer proximity such as Australia. Other Asian countries are expected to expand although high oil prices could adversely affect their non-energy imports especially this year. Therefore, the outlook for Canadian railway transportation of commodities to this market will be weak this year but will do somewhat better in the medium term. The Japanese economy will recover in the medium term although its growth will be modest.

Coal Rail Traffic Outlook

The Canadian coal industry has gone through some difficult times in recent years with weaker economic activity in Asian markets, mainly in Japan, which reduced coal demand and prices. Metallurgical coal prices dropped by close to 30 per cent in the last three years, reaching its lowest level in 25 years. Thermal coal prices have been more stable. Metallurgical coal is mainly demanded by steel producers and to a lesser extent for general industrial purposes. Thermal coal is used by power generators. Last year, the operations of the Quintette mine in British Columbia and the Gregg River mine in Alberta had to be shut down due to depressed global prices and strong international competition, mainly from Australian and Indonesian producers. The Smoky River mine in Alberta was also closed in March 2000 due to bankruptcy. The latest data available by Statistics Canada shows that total Canadian production of coal declined by 4.7 per cent in the first ten months of 2000 compared with the same period in 1999.

Canada exports more than 45 per cent of its production to 22 countries. Japan and South Korea are the two largest buyers. In the last two years, all of the metallurgical coal extracted in Canada was intended for export. Only 10 per cent of thermal coal mined in Canada was shipped to foreign markets. Total coal exports over the January to October 2000 period were down by 3.6 per cent compared to the 1999 level.

Growth prospects in the Canadian metallurgical coal industry are not very promising. In mid-2002, the Luscar mine in Alberta is expected to cease its activities. In 1999, this mine produced 2.65 million tonnes of metallurgical coal for export to international steel mills, and this accounts for about 8 per cent of total Canadian coal exports. No significant metallurgical mine openings are planned in the next few years. The development of the Cheviot mine in Alberta, which was expected at the beginning of this decade, has been further delayed due to the inability to secure long-term contracts with various Japanese steel mills. In addition, the global consumption of metallurgical coal is not expected to grow strongly over the next five years due to technological advances in steelmaking that reduces the demand for metallurgical coal. Only modest price movements for metallurgical coal are expected in the future. With several mine closures and sluggish demand in the global steel industry, metallurgical coal traffic should advance quite slowly over the next five years.

On the other hand, the medium-term outlook for thermal coal is brighter. In spite of environmental concerns, the electric power industry will continue to use coal over the next few years due to high natural gas prices. In the last few months, a couple of coal-fired generating plant expansions have been proposed for the tight Alberta electricity market.

Overall, total Canadian coal rail traffic is expected to decline by 4.4 per cent in 2000 and by a further 7.2 per cent in 2001 to 34.4 million tonnes. Coal rail traffic will advance moderately by 0.3 per cent, compounded annually, over the 2002-2005 period due to the modest metallurgical coal outlook. There is some downside risk to the outlook as the Canadian coal industry faces strong global competition from lower cost Australian producers.

Grains Rail Traffic Outlook

Total grains rail traffic, which increased by a projected 18.6 per cent in 2000, is forecast to decline by 1.5 per cent to 36.6 million tonnes in 2001. Rail shipments of grains are anticipated to advance moderately by 1.7 per cent over the 2002-2005 period, reaching 39.1 million tonnes by the end of the forecast. The reasons for this trend in grains rail traffic are described in detail below for various types of grains and oilseeds. Overall, this trend is affected by grain and oilseed production, carry-in stocks, foreign competition, and demand for such commodities.

Wheat supplies are expected to decline by 4.6 per cent in 2000-01, with a 6.4 per cent drop in production partially offsetting slightly higher carry-in stocks. Domestic use is expected to remain at historically high levels due to strong feed demand. As a result, it is anticipated that exports will fall by 4.3 per cent in 2001. On the other hand, exports of durum wheat are expected to climb by 6.3 per cent this year, due to increased demand from Northern Africa.

Coarse grain exports are expected to rise by 7.1 per cent in 2001. In particular, both feed and malting barley exports are forecast to increase, the latter due to increased demand from China and reduced competition from the E.U. and Australia, where adverse weather conditions have led to lower yields. Exports of oats are expected to fall marginally due to increased competition from the E.U. in the U.S. market for feed oats. Similarly, corn exports are expected to decline this year, due to significantly lower production, despite historically high carry-in stocks.

Likewise, oilseed production is projected to fall by 7.1 per cent, but exports are expected to expand by 6.3 per cent in 2000-01. Exports of canola are forecast to increase due to less competition from Australia and the European Union. Higher imports from the E.U. should lead to an increase in flaxseed exports, while rising world demand should spark stronger soybean exports.

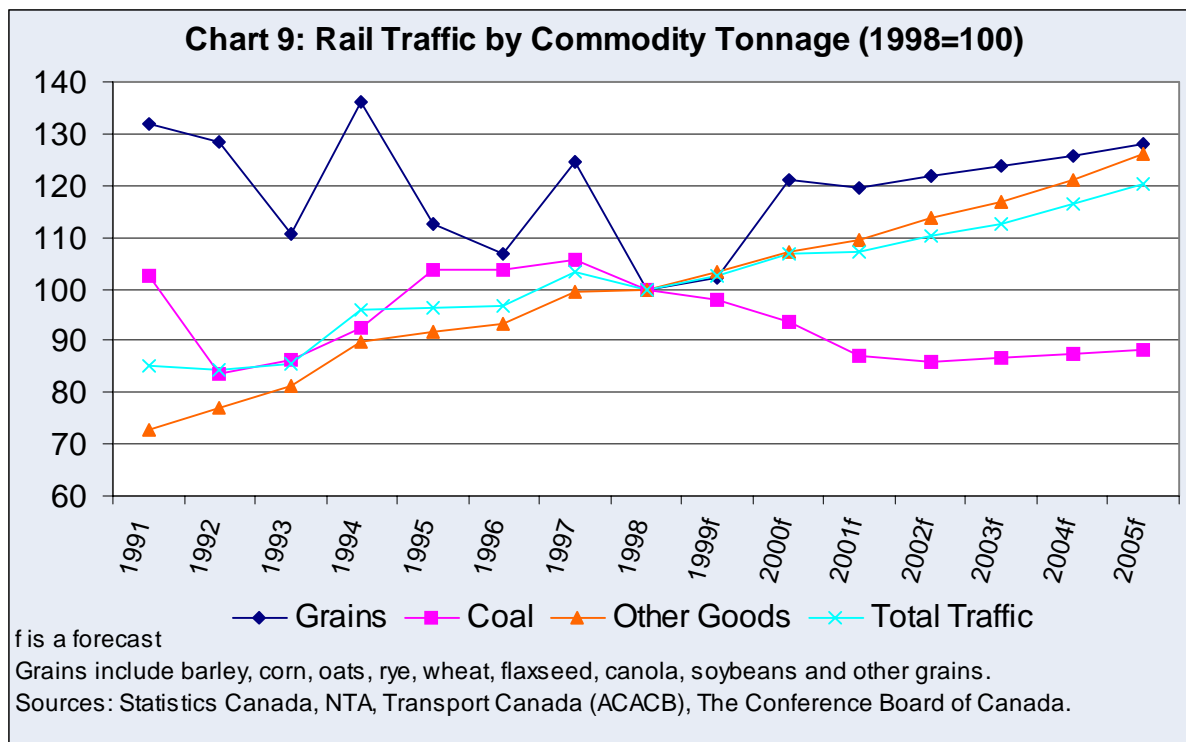
According to Agriculture and Agri-Food Canada, production of grains and oilseeds is expected to average 2 per cent growth, compounded annually, between the 2001-2002 and 2004-2005 crop years. The total area dedicated to crops will remain relatively stable, decreasing slightly from 39.3 million hectares in 2000-01 to 39.2 million hectares by 2004-05. For the major grains and oilseeds, however, the area harvested is projected to increase moderately, as some hay and

summer fallow area is shifted into grains and oilseeds production. Due to increased domestic use, however, export growth will expand at a slower rate than production.

Wheat production will increase over the forecast period, as rising prices motivate farmers to expand the seeded area of wheat. Specifically, annual compound growth is expected to average 2.7 per cent. Wheat exports will expand at a slightly faster rate than overall production, as domestic feed and food usage increases at a slower pace.

Similarly, higher prices for coarse grains will encourage production. Average annual compound growth is forecast to average 3.1 per cent. However, total coarse grain exports are expected to decline over the forecast period, led by declines in barley and corn, as rising feed and industrial use limits export availability.

Canola and flaxseed prices, which have been falling due to strong world production, are expected to rebound over the forecast period, while soybean prices are expected to decline slightly. However, the price increases will not be strong enough to convince farmers to increase production. In fact, overall production of oilseeds is expected to fall slightly from 10.6 million tonnes in 2000-01 to 10.3 million tonnes in 2004-05. Moreover, continuing weak prices will encourage domestic oilseed processing, resulting in an even tighter domestic supply. As a result, exports of oilseeds will decline over the forecast period, from 5.3 million tonnes in 2000-01 to 4.4 million tonnes by 2004-05.



Summary

Overall we expect to see almost no gains for 2001 and modest growth for the period of 2002-2005. For grains a 1.5 per cent decline is forecast for 2001 with increases over the following 4 years of less than 2 per cent. Coal tonnage is expected to fall in 2001 and 2002 and then level off to 2005. All other goods show modest gains over the entire period. A complete analysis is shown in Chart 9 (above) and Table 6.

Table 6: Rail Traffic by Commodity								
(Thousands of metric tonnes)								
	Grains	% Ch	Coal	% Ch	Other Goods	% Ch	Total Traffic	% Ch
1991	40335		40456		127977		208767	
1992	39321	-2.5	33086	-18.2	135111	5.6	207518	-0.6
1993	33899	-13.8	34119	3.1	142404	5.4	210421	1.4
1994	41692	23.0	36540	7.1	157351	10.5	235583	12.0

1995	34477	-17.3	40961	12.1	161057	2.4	236495	0.4
1996	32736	-5.0	41038	0.2	163836	1.7	237610	0.5
1997	38086	16.3	41808	1.9	174299	6.4	254193	7.0
1998	30619	-19.6	39522	-5.5	175560	0.7	245702	-3.3
1999f	31293	2.2	38732	-2.0	181529	3.4	251554	2.4
2000f	37114	18.6	37027	-4.4	188246	3.7	262387	4.3
2001f	36557	-1.5	34358	-7.2	192199	2.1	263114	0.3
2002f	37251	1.9	33937	-1.2	199503	3.8	270691	2.9
2003f	37847	1.6	34225	0.8	204889	2.7	276961	2.3
2004f	38529	1.8	34519	0.9	212675	3.8	285722	3.2
2005f	39184	1.7	34819	0.9	221182	4.0	295185	3.3

f is a forecast

Grains include barley, corn, oats, rye, wheat, flaxseed, canola, soybeans and other grains.

Sources: Statistics Canada, NTA, Transport Canada (ACACB), The Conference Board of Canada.

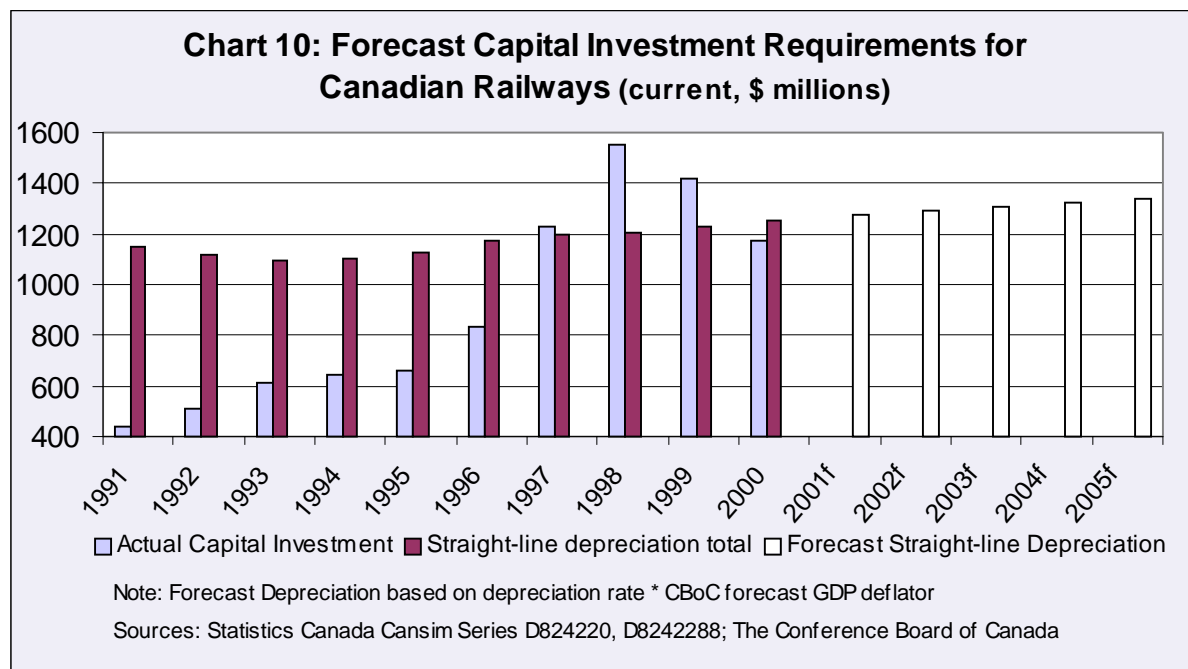
III.2 Future Capital Spending Requirements

Future capital spending requirements are based on the following needs by the railways:

- cover future depreciation
- handle additional forecasted tonnage; and
- increase productivity.

The Conference Board of Canada’s quantitative estimate is based on projected straight-line depreciation costs based on data from Statistics Canada. In addition, we provide analysis based on a review of the available literature and informal interviews with industry experts.

Using straight-line depreciation data from Statistics Canada, and The Conference Board of Canada’s forecast GDP deflator, it is projected that Canadian railways will need to invest around \$1.3 billion (current dollars) in each of the next five years just to cover their depreciation rate (see Chart 10).



In the short term, for 2001, the railways appear to be investing less than they have over the previous years. There are two apparent reasons for this. First, capital spending from 1997 to 2000 was needed to “catch-up” for the lack of investment of the early 1990s, and therefore, barring unforeseen circumstances, the railways will not need to spend with the same intensity going forward. The second reason for the short-term decline in spending is due to the slowdown

of the North American economy in 2001. Table 7 summarizes some the forecasted spending for U.S. railways in 2001.

Table 7: Selected U.S. Railway Capital Spending forecast for 2001

Union Pacific expects to spend US\$ 2 billion, 90% will go into track maintenance and capacity work. But the key to future growth is on the top line by the intro of new services.

- CSX was over US\$ 900 million in capital spending (somewhat lower than 2000) with majority of the work targeted for track infrastructure enhancements. But, there are signs of weakening, particularly in autos, metals, chemicals and plastics. "Continued uncertainty in the economy and the fuel price wildcard make any short-term projections very risky" -- Micheal J. Ward, President, CSX Transportation
- Kansas City Southern Railway (KCSR) had a number of significant construction projects in 1999 and 2000. KCSR will reduce its capital expenditure levels to about \$75 million, which fall into the 13-15% of revenue guideline that most railways use. Most of that amount will go towards maintenance projects. KCSR expects traffic growth in 2001 from Mexican sources and improved service compared to the service disruptions of past mergers.

Source: William C. Vantuono, "Railways in 2001 – Which way?," *Railway Age*, December 2000, http://www.railwaygage.com/dec00/2001_outlook.html

In the medium term (2002-2005), CN and CPR will likely be able to handle the projected total rail traffic increase of 17 per cent with relatively minor adjustments to the existing infrastructure. However, ideally, new investments should be made in information technology (I.T.), yard capacity and sidings for longer trains, and upgraded rolling stock (among other things). Without these, railways will have difficulty improving their productivity and meeting promised service commitments.

Part IV: Funding Future Capital Spending

IV.1 Assessing the Attractiveness of Canadian Class 1 Railroads to Investors

In assessing the capacity of the railroad sector to attract investment capital sufficient to fulfil their historic role in the Canadian transportation network, it is important to note that railroad access to capital depends not on their economic role but on meeting the return on investment criteria used by investors in making their decisions. If the companies which make up that system fail to attract investment (whether because of their own shortcomings, because of a secular decline in the relative competitiveness of the sector, or because of a differential regulatory burden), other companies will attract the investment. If the sector as a whole is made unattractive, the investors will allocate their capital to other sectors of the economy or to companies in other countries.

It should also be noted that, while past investment is locked into a railroad company in the short to medium term, capital is mobile in the long term. Unless the rate of return in a company is competitive with the alternative possible investments, investors will seek other more productive uses for internally generated funds. The result is what we saw over the past several decades; the railroads themselves were starved for new capital while their current surpluses were redeployed to more productive investments. It is the profitability and growth prospects of individual companies that attract and keep investors.

Prior to the changes in the mid-1990s, the Canadian Class 1 railways had not been attractive investments¹⁸. This has been the case partly as a result of their regulatory environment and, they would argue, partly because of the indirect subsidies provided by government to other suppliers of transportation services (through publicly funded infrastructure such as roads, shipping facilities and airports). Over the past several decades, both the major Canadian railways have struggled to earn even their cost of capital. It is likely that neither would have survived in anything like their current form, without the support provided by being a Crown Corporation (in the case of Canadian National) or from the broader corporate entity (in the case of Canadian

¹⁸ CNR, of course, had been a Crown Corporation in which only the federal government was a shareholder. However, if it had been publicly traded, it is unlikely that it would have been regarded as a quality investment.

Pacific). The negative NCI for the Canadian Class 1s, especially between 1985 and 1995, suggests that the existing investors in these railroads were slowly running down their investment in favour of other opportunities. Since it was privatised in 1995, CNR has experienced a substantial increase in its stock price, partly reflecting the overall performance of the equity markets and partly reflecting the improved prospects for CNR in the new environment. The market reaction to CPR in the new environment is more difficult to gauge since it trades as part of a larger entity.

Table 8: Percent Return on Capital, CN, CP and Selected Canadian Economic Sectors

	<u>1 year</u>	<u>5 year average</u>
CN	14.13	4.83
CP Ltd	9.24	9.91
CPR*	4.88	n/a
Banks	20.98	20.49
Consumer Products	19.88	15.70
Telephone Utilities	17.66	15.85
Integrated Oil	17.26	15.12
Life Insurance	16.14	13.82
Biotech and Pharmaceuticals	16.09	13.82
Forest Products	15.01	12.66
Chemicals	14.08	21.73
Gold Producers	11.94	6.54
P&C Insurance	11.66	17.32
Gas Utilities	10.22	12.22
Electrical Utilities	9.61	9.19
Oil and Gas Production	8.46	7.03
Real Estate	8.36	7.03
Integrated Mines	7.62	8.49
Simple average of sectors	12.96	13.25

*CPR is a wholly owned subsidiary of CP Ltd accounting for about 35% of the net asset value of the parent. CPR's return on capital was depressed in 1999 because of unusual items. Its return on capital in 1998 had been 15.49%

Source: Globe and Mail, Report on Business Magazine, July 2000. Banking and Financial Statistics, Bank of Canada, various editions

In spite of the equity boom in the last half of the 1990s, the price earnings multiples of the Canadian railroads remain low compared to other Class I railroads in North America. It is interesting to note that the share price of CP Ltd. jumped after the announcement that the conglomerate was going to be restructured into its component parts. It will be a telling indication of the market's evaluation of the railroad sector to see where CPR's P/E ratio settles once it trades independently of its sister companies.

Table 9: Price/Earnings Multiples of North American Class 1 Railroads*

	<u>P/E Multiple</u>	<u>Stock Price</u>	<u>Change In Stock Price from Year Earlier</u>
CN	10.55	C\$ 48.85	+6%
CP Ltd	9.38	C\$ 42.50	+27.4%
Burlington Northern	12.08	US \$29.00	-12.6%
CSX Corp	11.34	US \$28.69	-33.1%
Norfolk Southern	31.37	US\$ 16.31	-37.6%
Union Pacific	14.31	US\$ 52.38	-4.5%

Source: Canadian Stock Market Reporter Inc.

Note: These stock prices are for the traded company. The railroad component within the company can vary widely, from under 35% in CP Ltd to almost 100% in CN. Prices are as of January 17, 2001, before the CP Ltd announcement.

A P/E multiple of around 10 implies a cost of equity capital for the Canadian Class 1 railroads of approximately 10%. It is notable that the major American railroad companies have higher (in some cases considerably higher) P/E multiples. This appears to reflect the longer history of the American railroads operating in significantly deregulated environment (at least in comparison to what came before), the impact of the investment these railroads made in the 1980s, and a degree of confidence that their regulatory environment is stable.

As confidence in the Canadian regulatory process increased over the past few years, the gap between the valuation of the Canadian and American companies has been reduced. The stock market performance of the Canadian companies (particularly CNR) has been strong relative to

their American competitors, reducing their stock under-valuation as their improved financial performance becomes established.

By early 2001, the two Canadian class 1 railways had operating ratios that were competitive with the best of the American companies, after being considerably higher in the early 1990s.

Table 10: Operating Ratios of North American Class 1 Railways

	1999	1998	1997	1996
CN	72.0	75.1	78.6	82.2
CPR	78.2*	79.2	81.4	83.4
Union Pacific	82.1	95.4	87.4	79.1
BNSF	75.4	75.9	77.8	78.4
CSX	85.4	80.4	75.4	77.0
Norfolk Southern	86.2	75.1	71.3	71.6

*excludes one-time charges

Source: Company Annual Reports, various issues

Progress, to date, by the Canadian railroads has been based on the reduction of surplus assets, cost reductions and capital investment programs that were designed to remedy the neglect of several decades. The future attractiveness of the railroads to investors will depend on their capacity to recapture market share from other modes of transport and to achieve a rate of return on capital that is comparable to the other large companies with which they must compete for the investment dollar (see Table 11, next page).

As a result, while the last half of the decade have been ones of very significant change with the two Canadian Class 1 railways, it is too soon for firm conclusions to be drawn about their future attractiveness to financial markets. The railways have recently shown a significant capacity to react positively to the competitive pressures they face, but their overall return on capital is still at the lower end of the range for major Canadian companies. It should be noted that the past 5 years have been ones of unprecedented real economic growth in Canada and the relative performance of the Canadian railroads remains to be demonstrated if the slowdown of the North American economies is worse than currently anticipated. Capital-intensive companies with relatively high fixed costs are particularly vulnerable to economic downturns. In order to be attractive to

financial market investors over the time horizon necessary to justify the investment, the railroads will have to demonstrate their capacity to earn a rate of return in excess of their cost of capital across an economic cycle.

Table 11: Return On Capital: Major Canadian Companies

<u>Company</u>	<u>% Rate of Return</u>	
	<u>1 year</u>	<u>5 year</u>
Canadian National	14.1	4.8
Canadian Pacific Ltd	9.2	9.9
CP Railway	4.9	n/a
<i>A) Selected Large Canadian Companies</i>		
Bell Canada	18.8	16.1
Seagram Co	7.2	13.5
Rogers Communications	26.3	10.4
Thompson Corp	9.3	14.5
Alcan Aluminium	10.4	12.0
Magna International	15.8	18.4
Bombardier	12.4	12.9
Power Corp	26.4	20.7
Barrick Gold	10.3	8.3
Quebecor	15.5	17.2
<i>B) Selected Utilities and Privatised Crown Corporations</i>		
Telus Corp	12.8	n/a
Enbridge Inc	10.0	11.3
Westcoast Energy	8.5	9.7
PetroCanada	9.7	10.4
Canadian Utilities	14.7	14.9
Air Canada	14.0	10.2

Source: Report on Business Magazine, July 2000

IV.2 Revenue Projections for the Railways

In this section, we will look at revenue projections based on trends in derived prices and using our forecast volume estimates calculated earlier. The price is derived implicitly by dividing the total railway revenues by the total tonnage of goods transported by the rail system in the country.

Freight rates have declined steadily since the beginning of the decade except for 1997. It is estimated that this implicit freight rate has remained the same in 2000 as in 1999. Given the weakness in the North American economy that will impact rail transportation of goods other than grain and coal, and given the decline in grain and coal exports, we expect average freight rates to decline this year. However, the modest growth in rail traffic for overseas as well as reasonably strong growth for rail traffic in North American markets should lead to modest implicit freight rate increases, on average of 1.2 per cent annually in the 2002-05 period.

Based on our price and volume estimates, total revenue in the railway system is estimated to have increased by 4 per cent in 2000 (see Table 8). Revenues are then expected to fall by slightly less than 1 per cent in 2001 in line with virtually no growth in rail traffic and a likely decline in freight rates. This decline in revenue could be larger if the freight rate falls more significantly or the North American economy ends up to be weaker than forecast. Over the last four years of the forecast, revenues are expected to grow on average by about 4 per cent and reach \$8.4 billion by 2005.

Table 12: Freight Revenues				
(in millions)				
(Volume in thousands of metric tonnes)				
(Price in cents)				
	Price	Volume	Total Freight Revenues	% Change
1991	2.88	208767	6007.1	
1992	2.78	207518	5763.7	-4.1%
1993	2.78	210421	5841.5	1.3%
1994	2.81	235583	6617.4	13.3%
1995	2.74	236495	6484.6	-2.0%
1996	2.73	237610	6480.5	-0.1%
1997	2.81	254193	7136.8	10.1%
1998	2.80	245702	6886.9	-3.5%
1999	2.75	251554	6922.1	0.5%
2000f	2.75	262387	7215.6	4.2%
2001f	2.72	263114	7162.0	-0.7%
2002f	2.76	270691	7458.6	4.1%
2003f	2.79	276961	7721.7	3.5%
2004f	2.82	285722	8064.5	4.4%
2005f	2.86	295185	8435.5	4.6%

f is a forecast

Sources: Statistics Canada; Transport Canada; Railway Association of Canada, The Conference Board of Canada.

IV.3 Railways Capacity to Fund Future Capital Requirements

As noted earlier, Canadian railways will need about \$1.3 billion a year in capital investment just to cover with straight-line depreciation. The \$1.3 billion represents 17 per cent of forecast operating revenue for Canadian railroads—above the 13 per cent CN and CPR average of the 1989-96 period but below the 28 per cent average for 1997-99.

Given that the forecast revenue numbers increase at about four percent per year in the medium term (2002-2005) and capital expenditure (CAPEX) equalling depreciation represents 17 of

revenue, the railways should be able to continue to fund their capital investment out of cash flow as they did during the 1996-2000 period (when CAPEX was well above 20 per cent of revenues). However, there are three clear risks to this assumption. The first, and most obvious, is that the forecast is wrong and overall tonnage declines. The second risk could result from an uncertain regulatory environment. Third, the \$1.3 billion may not be enough to allow the railways to make necessary productivity improvements (upgrade capital stock vs. only maintaining capital stock). If these investments became critical, the capital requirements would be considerably higher. There is a less apparent risk, changing traffic mix that shifts marginal revenue more than expected.

A continued shift to intermodal traffic could cause a capital investment dilemma for railways because intermodal notionally provides a lower margin of capital return. Much of the traffic growth expected over the medium term will likely be in the form of intermodal volumes—containers on flat cars (CoFC) and trailers on flat cars (ToFC). The ToFC such as CPR’s “Express Way” service requires modest investment for new flat cars and relatively simple terminals for loading and unloading equipment. On the other hand, CoFC continues to require large investments to lower transit times.¹⁹ Investments are likely needed in the whole range of railroad infrastructure: terminals, rolling stock, locomotive power, IT systems and road. But railways may be in a bit of dilemma when it comes to investing large sums of capital in CoFC because it seems to have relatively low profit margins. Therefore, although total traffic is expected to grow the railways may not be ideally suited to meet the needs of the future traffic mix—lower coal tonnage and higher intermodal tonnage.

¹⁹ Because CoFC is often time-sensitive, roadway and related infrastructure must be able to handle large trains of double-stacked containers capable of relatively low transit times compared to other traffic. One of the ways CN and CPR increased their intermodal business is to get the ports they serve (Vancouver, Halifax, and Montreal) as “ports of first call” container ships. CN and CPR sell the ports of Vancouver and Halifax as having a competitive advantage over U.S. ports because they are on shorter ocean routes to northern Asia and northern European markets. For the railways to complete the transaction, they must quickly move container trains to places like Chicago in order to beat the total transit times of U.S. railways and ports to comparable markets.

Part V: Current and Future Legislative Influences on the Supply and Demand of Capital for Freight Railway Industry

V.1 Current Legislation

Compared to the National Transportation Act, 1987 (NTA '87), the Canada Transportation Act (CTA) has been significant in improving the climate for capital investment by CN and CPR.

Under the CTA the ability of the railways to discontinue operations of uneconomic lines combined with the ability to negotiate confidential contracts has enabled the railways to make the capital investments that were deferred when the NTA '87 was in effect.

At first glance, American Class I railroads appear to have legislation that is more favorable towards capital investment. The Staggers Act requires revenue adequacy of the railways to be of paramount importance for regulatory decisions. However, actual capital investment performance is difficult to compare between Canada and United States, because Class 1s have been operating in very different business environments since 1996—U.S. Class 1s have had their operations plagued by problems associated with the spate of mergers and acquisitions. A more thorough comparison of capital investment under the CTA and the Staggers Act will require further study.

V.2 Future Legislation

A number of proposals been put forward which have the potential to negatively affect the ability of CN and CPR to adequately invest in the system.²⁰ The Interim Report by CTAR put forth three criteria for evaluating proposals to change the legislation: competition and efficiency; compensation; and regulatory burden and related costs. We will use the same criteria to evaluate how any proposals could affect railway capital investment.

Competition and Efficiency

To date, most of the productivity improvements and earnings growth by CN and CPR have been largely through cost-reductions. Going forward, CN and CPR will need to grow their businesses, seek new service solutions with shippers, and improve productivity by better managing their

²⁰ These proposals are extensively outlined by the CTAR's Interim Report, December 29, 2000.

existing assets and human resources. In other words, the “low hanging fruit has been picked” and any incremental efficiency gains in the future will be much harder to achieve. Railways will need to be more service oriented if they are to generate profitable revenue growth. Gilles Roucolle of Mercer Management Consulting puts it this way:

Logistics and transportation managers consider not just their rail freight costs, but rather the total economic equation of the logistics chain. While price may remain a leading competitive factor, our research suggests that such other attributes as value-added logistics services, on time performance, convenience, and total transit time have become increasingly important to customers.²¹

Therefore, proposals to change the legislation that could disrupt the system and/or move railways further from their customers will likely have a negative impact on the financial performance of railways.

Compensation

In terms of capital investment, the issue is not necessarily the proposals themselves but how those proposals would directly affect the sustainability of capital expenditures by the railways. To ensure capital sustainability, proposals should cover variable costs and make a contribution to fixed costs equivalent to other railway activities. If the proposed rules involve railroads being forced to allocate capital to low rate of return activities, there will be negative repercussions across the entire system.

Proposals like the Competitive Access Rate (CAR), where there is the potential to have rates set by the regulator for large part of the freight movement can have an adverse impact on the sustainability of capital spending. In other words, the CAR proposal could result in differential pricing being replaced with a regime of regulated rate making for most rail movements. Regulated rates are extremely difficult to set in such a way that they are fair to the customer and do not encourage over capitalisation and inefficiencies by the regulated entity. Also the task of regulating rates for the multiple different kinds of products carried by railways has proved to be very difficult in both Canada and United States. Indeed, Grimm and Winston in their recent study of rail regulation in the United States state:

²¹ Gilles Roucolle, “Is profitable revenue growth possible?” *Railway Age*, January 2001, <http://www.railwayage.com/jan01/pointofview.html>

The railway industry is perhaps the only U.S. industry that has been, or ever will be deregulated because of its poor financial performance under regulation.²²

History has shown that regulated railway rates have sent the wrong price signals to both shippers and railways, led to insufficient reinvestment by the railways, and do not create any incentives for the shipper and the railway to seek optimal service solutions.

Regulatory Burden and Related Costs

Since money is fungible, and investors will go to where they can get the highest returns, uncertainty caused by changes or even proposed changes to legislation can have an impact on capital investment that is above and beyond direct costs of regulation. Capital investment can be negatively affected by either poorly crafted legislation and/or regulatory uncertainty associated with legislation that is unclear in its intent. There are numerous examples where poorly crafted, outdated legislation, or uncertain intent by the regulators created a climate that was not suitable for investment. Five examples are listed below.

- Poorly crafted regulation can lead to years or even decades of inappropriate price signals. For instance, wellhead regulation of natural gas prices in the United States stemming from a 1954 ruling by the U.S. Supreme Court decision, known as the Phillips Decision, caused supply and demand imbalances for natural gas that were not completely resolved until the mid 1980s. The Phillips Decision created a linkage between natural gas reserves and regulations. This linkage led to lengthy hearings, complex regulations, and finally a shortage of natural gas caused by a regulatory-induced imbalance of supply and demand.
- The Crow rate for grain transportation is an example of a regulation that was in place well beyond its time. Beginning in 1897, the federal government gave CPR a \$3.3 million subsidy for rail construction through the Crow's Nest Pass. In exchange the CPR agreed to reduce freight rates for eastbound grain traffic in perpetuity. By 1931 the Crow rate was applied for pricing of all east and westbound grain traffic on CPR and Canadian National Railway lines. Grain traffic was profitable until the 1950s when inflation overtook the rates. By the 1960s, the railways were losing money on grain transportation. As a result, CN and CP became

²² Curtis Grimm & Clifford Winston, "Competition in the Deregulated Railroad Industry: Sources, Effects and Policy Issues," *Deregulation of Network Industries, What's Next?*, Sam Peltzman and Clifford Winston, eds., (Washington

unwilling to upgrade hopper cars and maintain branch lines. The physical deterioration in infrastructure became evident during the 1970s when the railways did not have the capacity to handle huge increases in foreign demand for grain. The federal government responded by purchasing new hopper cars and providing grants for branch line maintenance.

Regulatory uncertainty is in large part to blame for the tight supply of electricity in Alberta. During the four-year period (1995-99) between the Government of Alberta announcing its intention to change the electricity market and the actual implementation of the changes, no new generating capacity was added (even though the economy was booming). Since 2000 (when the regulatory structure and rules were finally put into place) about 4000 megawatts of new generation capacity is planned or already under construction.

The current electricity problems in California provide an example of both poorly designed regulations and regulatory uncertainty. Poorly designed regulations have led to a price cap for end-users which creates no incentive to limit demand and no long term contracts for power purchases (which results in electricity distribution companies subject to spot market prices). Regulatory uncertainty resulted in no construction of generation capacity, even though the California was one of the fastest growing economies in the United States.

The National Transportation Act, 1987, which lifted regulatory restrictions over railway prices, but not operations resulted in a significant under investment in the system by the railway due to poor returns on capital.

The above examples all show that partial deregulation can be more damaging for a sector than no deregulation at all. Tom Adams, Director of Energy Probe, was right on the mark when he recently said:

“The successful jurisdictions [at reforming electricity regulations] are jurisdictions that have regimes that make it a safe, secure environment for investment.”²³

D.C.: AEI-Brookings Joint Center for Regulatory Studies, 2000) pp. 41-71.

²³ Tom Adams, Director, Energy Probe quoted in Lily Nguyen, “California power debacle seen as anomaly,” *The Globe and Mail*, February 14, 2001, B6.

Part VI: Conclusion

The Canadian railroads stand at a crossroad. After years of underfunding the maintenance of their physical assets and their infrastructure, they have made significant progress in renewing their capital stock and improving their productivity, while contributing to their own long-term financial viability. These changes have come about largely as a result of the evolution of their regulatory and operating environments. Since the mid-1990s they have operated under a more business oriented regulatory regime. The result has been the revitalisation of a previously declining system and new hope that it can continue to perform its historic function in the Canadian economy.

However, the outlook remains uncertain. The change in the performance of the Canadian railroads has coincided with a period of rapid economic growth within the North American economy, which has in turn provided the revenues with which to fund the necessary capital expenditures. How the financial performance of CN and CPR will fair through a full economic cycle under the present legislation has yet to be tested. While the current forecast is for moderately strong growth over 2001-2005, the possibility exists that the current slowdown may be more severe than expected.

The Canadian railroads must also compete with their American counterparts for the financial resources necessary to continue improving their capital stock and to participate in the rationalisation the sector is undergoing in North America. The solid improvements in financial performance posted by CN and CPR over the past five years (relative to their American counterparts) have been partly due to their own much improved management, but was also partly due to the operational problems associated with the mergers which involved the largest Class 1s in the United States. It is likely that CN and CPR will have more difficulty keeping their financial performance ahead of U.S. Class 1s as those railways overcome the difficulties encountered with their mergers and begin to reap the expected performance gains from greater consolidation.

The greatest uncertainty facing the railroads, however, is the future of the legislative and regulatory environment. The railroads are particularly vulnerable to changes in this environment on two counts. First, more than most sectors the railroads have been used as instruments to achieve government policy objectives, rather than being allowed to maximise their profit opportunities. The result was a poor rate of return to investors and a well established reputation as unattractive investments. Given their history, it will take time for the railroads (and especially their regulators) to earn the trust of investors who will be vigilant for signs of a return to old practices. Second, the railroads are capital intensive companies whose physical capital is not easily redeployed to other uses. That makes them especially vulnerable to a “change in the rules”. Once an investment is made, the investment is locked in for a considerable period of time. As a result, an investor looks for some assurance that the legislative and regulatory regime is stable before committing sizeable funds to improve or maintain the railroad capital stock.

The changes that came about with the CTA and the privatization of CNR went a long way towards establishing investor confidence in the long-term viability of the Canadian railroad companies. However, much of that progress could be lost in an uncertain regulatory environment, or one that is perceived as giving non-market advantages to special interest groups at the expense of the railroad companies. There are a number of difficult issues (particularly ones relating to captive shippers) which require regulatory oversight. However, the future health of the Canadian railroad system depends critically on those decisions being made in a manner which is seen as fair, and which pays adequate attention to the need for the railroads to earn a reasonable rate of return for their investors.