Impact of Railroad Regulatory Reform on Railroad Capital Investment

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The Staggers Rail Act of 1980 made the most extensive changes in the Interstate Commerce Act in more than 50 years. It represented a major shift in government policy toward the rail industry. This paper examines the probable impact of the act on railroad capital spending. The primary findings are (a) the rate regulation provisions of the act will enable the railroads to improve their profitability, (b) improved profit potential will increase the attractiveness of many investment opportunities available to railroads, (c) the act is unlikely to decrease the industry's cost of capital, (d) increased amounts of money capital should be available for investment, and (e) railroad capital spending should increase. The types of capital projects likely to be affected are also discussed.

Capital needs do not necessarily represent economically justified investments. They tend to include other investments deemed needed or desirable by some other criteria. Not surprisingly, capital needs always seem to exceed capital spending.

For example, one often cited capital need of the railroad industry is the elimination of deferred maintenance. The amount of deferred maintenance is the cost of improving existing rail lines to meet some physical standard. Yet most, if not all, deferred maintenance exists as a result of declining traffic levels and/or declining profitability on particular lines that can no longer generate profits sufficient to justify full maintenance.

As traffic declines, a railroad must reduce its capacity and its investment in that line. It should invest its resources in those parts of its system where sufficient demand exists for rail transportation to cover the cost of those resources. The economically rational way for a railroad to reduce its surplus capacity and redirect its capital to more productive uses is to maintain a line for a lower train speed. Deferred maintenance is thus a healthy and desirable response to changes in transportation demand. Capital needs do not totally represent economically efficient or desirable investments.

This paper, therefore, will focus on railroad capital spending rather than needs.

IMPACT OF REGULATORY REFORM ON RATES

What will rail regulatory reform do? Not too long ago, some people were talking of multibillion dollar efficiency gains (1, p. 66).

Some Widely Held Views

One common belief went something like this: Following a value-of-service pricing approach, railroads and their regulators had held down rates on raw materials and bulk commodities and had kept rates high on manufactured goods and other valuable shipments. Profits from these high-rated items offset low returns on low-rated traffic. But then trucks became competitive and captured most of the high-rated merchandise traffic, leaving the railroads with the less profitable low-rated traffic. Deregulation would presumably allow, or force, the railroads to price closer to cost. The railroads would reduce their rates on high-rated traffic and recapture much of it from the truckers. The supposed existence of both significant economies of scale in the railroad industry and much excess capacity would make this newly recaptured merchandise traffic highly profitable, even at these lowered rates. At the same time, the industry would raise its rates for the large amount of traffic that was moving below cost. Society would gain billions in this general equilibrium world of cost-based pricing and maximized economic efficiency.

The facts are that the railroads responded to truck competition by holding down rates on truck-competitive traffic. Thus these rates were already governed by competitive forces and are not likely to be much affected by rail deregulation.

An alternative view of rail deregulation holds that bulk commodities such as coal have been highly profitable for the industry and that these profits have been subsidizing other rail traffic--presumably the high-rated goods discussed earlier. (Note that this view is the opposite of the earlier view.) According to this view, deregulation would allow the railroads to exercise their monopoly power to charge unreasonably high rates and cost society huge sums of money. This robber-baron view seems to have some credibility on Capitol Hill. It had a significant impact on the 1980 Staggers Rail Act.

Although the railroads do not face truck competition for lengthy hauls of coal, they do face competition from other railroads who can furnish coal from other areas. This, plus competition from water carriers, tends to hold coal rates to economically reasonable levels. Potential coal slurry pipeline competition will add to this pressure. This competitive effect on rates is demonstrated by the profitability of the railroads most closely identified with coal traffic, such as N&W and C&O. In 1979, N&W earned only an 8.9 percent return on its investments while C&O earned 4.6 percent. Both are well below the industry's 11 percent cost of capital, as determined by the Interstate Commerce Commission (ICC) in 1979 [Ex Parte 363, Adequacy of Railroad Revenue (1979 Determination), 362 ICC 344, Jan. 31, 1980].

It could be argued that these overall returns are not indicative of returns on coal traffic. The returns shown are calculated on the ICC basis, which excludes any significant nonrail income and investment. Coal represented 43.5 percent of N&W revenues and 47.6 percent of C&O revenues in 1979. It is not possible to compute the return on their coal traffic alone, primarily due to the high proportion of joint and common costs involved. Assuming that the effect of any traffic moving below marginal cost is relatively minor and that the ICC 11 percent finding represented at fair return on the companies' net original cost investment base, it is clear that neither company is earning an economic rent on its overall rail operations.

A definitive analysis would require isolation of that portion of the investment base and of the revenues and costs that would be incurred with a coal-only operation. This analytical approach treats coal (or, hypothetically, any subset of the existing coal traffic base) as a base load and other traffic as incremental. I assert that monopoly returns would be earned only if more than 11 percent were earned on either (a) this base-load calculation, or (b) some combination of base load and

incremental traffic. Such a calculation is beyond the scope of this paper. The point here is that neither company is earning a fair return on its rail business as a whole. I ascribe this primarily to competitive forces.

Probable Impact on Rates

I do not believe that rail regulatory reform is going to lead to much higher rates for bulk commodities, or to lower rates for manufactured goods. But I do think it will lead to better rates.

What do I mean by better rates? Several things.

First, rates should be more timely. Increases to offset inflation should occur without as much regulatory lag. Rates should respond more quickly to changes in market conditions. Innovative and experimental rates should go into effect more quickly and should be revised or cancelled more quickly if they do not work as intended. By squeezing some lags out of the system, the industry will improve its competitive stance and its profitability.

Second, innovation and experimentation should become less risky. In the past, regulators have sometimes had a tendency to make the railroads live with their mistakes. Revising or cancelling rates that did not work as intended has sometimes been difficult. Rates deliberately set low to meet some special circumstances have been used in some cases as proof that other rates are unreasonably high. Actions such as these have increased the risks of innovative ratemaking and, thus, have discouraged innovation.

Third, contract rates should enable the railroads to compete more effectively for base-load traffic. It has been difficult for the railroads to pass on the high cost of providing standby, or peak-period, service without driving away regular, base-load business. As a result, the railroads often find themselves providing only standby service while other modes enjoy the base loads. A similar problem exists with unbalanced traffic flows. Other modes have priced and solicited to capture backhaul traffic, while rail has been left with the empty backhauls. This has been a common problem with piggyback traffic (2).

A fourth effect will be the gradual elimination of rates currently set below cost. This will happen for three reasons.

First, the act requires it.

Second, the railroads will now have the freedom to accomplish this objective. In theory, the railroads have already had this freedom. The ICC rarely has held a rate below what it computes as Rail-Form-A (RFA) variable cost. Unfortunately, Rail Form A used the industry's embedded cost of debt capital as a proxy for the railroad's pretax cost of (total) capital. By using such an unrealistically low estimate of the cost of capital, combined with the use of out-of-date cost figures during an inflationary period, the result was significantly understated cost figures. Thus, a rate determined to be perhaps 105 to 110 percent of RFA variable cost would actually be below the opportunity costs involved.

Third, the act's provisions regarding regulation of intrastate rates (Section 214) will influence rate elimination. A disproportionate share of intrastate rates are below cost (e.g., verified statement of R.A. Robb, North Carolina Utilities Commission, Docket No. R-66, Sub 93, June 1978).

These are just a few of the areas in which I believe the Staggers Rail Act will be helpful in the industry. Other helpful provisions include Section 202 (revised market dominance provisions), Section 207 (revised suspension provisions), Section 211 (permissive limited liability rates), Section 212 (discrimination provisions), Section 213 (exemption provisions), and Section 220 (revised long- and short-haul section). None of these changes will produce sudden dramatic impacts on rail profits. It will require a great deal of slow laborious effort to take advantage of these opportunities.

IMPACT ON CAPITAL INVESTMENT

I think the net effect of all of this will be a slow but steady increase in railroad profitability. But what impact will that have on capital investment? To look at that, it is first necessary to look at what the three major factors are that drive the capital investment process:

1. Prospective return and associated risk of the new investment,
2. Cost of new investment capital to the firm, and
3. Availability of investment funds.

All three of these factors are interrelated, but I will discuss them separately.

Impact on Investment Return and Risk

It would be natural to assume that improved railroad profitability resulting from regulatory reform would also improve the prospective returns on new investments. But not all prospective investments will be affected. Some investments are made purely for the purpose of reducing costs. An example of such an investment would be a new locomotive shop. The return on this investment would be a function of the difference in performing locomotive maintenance with existing facilities compared with performing the same maintenance in the new shop. Regulatory reform will have no direct impact on those savings.

Regulatory reform is, however, likely to increase the profitability of rail traffic and, thus, can increase the attractiveness of projects intended to bring new traffic to a railroad.

The prospective return from a new investment must be balanced against the prospective risk associated with that investment. The impact of regulatory reform on project risk is not clear. I have already discussed how the rail regulatory reform act should make innovative and experimental services less risky. But what about more conventional services that are necessarily the bulk of railroad business? In theory, economic regulation reduces the risk of an enterprise as long as that regulation is fair, consistent, and effective. But I believe that rates on most rail traffic have been governed primarily by competition and that regulation has served only to sporadically disrupt this process. Thus, it could be argued that regulatory reform will actually serve to reduce the business of risk of the railroad industry. Airline and truck deregulation, however, has clearly served to increase business risk in those industries. It seems too early to tell at present whether the same will occur in the railroad industry.

The table below shows the probable impact of selected sections of the act on railroad risk:

Risk Factor	Probable Impact on Risk
Contract rates (Sec. 208):	
New investment risk	Decrease
Rate flexibility	Unclear
Rate regulation (Secs. 201, 202, 203)	Unclear
Inflation-based rate increases (Sec. 206)	Slight decrease
Demand-sensitive rates (Sec. 209)	Decrease

Risk Factor	Probable Impact on Risk
Reciprocal switching (Sec. 223)	Increase
Railroad entry (Sec. 221)	Increase
Intrastate rates (Sec. 214)	Decrease
Rate bureaus (Sec. 219)	Increase

In summary, it seems likely that regulatory reform will tend to increase the returns from new traffic-generating investments, but it is not clear what net impact it will have on risk.

Impact on Cost of Capital

I do not believe regulatory reform will have an impact on the cost of capital. The cost of capital is the weighted average of the cost of debt capital and the cost of equity capital to the firm. The cost of capital is easy to ascertain; it is specified by contract between the investor and the borrower. It is a function of the perceived risk of the investment and of investors' opportunity costs for funds. Similarly, the cost of equity capital is also determined by perceived risk and by investors' opportunity costs. Unlike the cost of debt capital, however, the cost of equity capital cannot be observed directly. The cost of equity capital is the discount rate that investors use when comparing what they expect to be the future return from owning that stock against the present market value of the stock. Of these three variables, we can observe only the market price. Investors' expectations and the discount rate they are using can only be inferred.

The rate investors use of discount expected returns can be expressed as (3, p. 368)

$$E(k_j) = r_f + [E(k_m) - r_f]\,\beta_j \quad (1)$$

where

$E(k_j)$ = investors' expected rate of return on security j,
r_f = risk-free return,
$E(k_m)$ = expected rate of return on the market portfolio, and
β_j = undiversifiable risk associated with security j.

In an efficient market, security prices will change sufficiently to equalize expected returns on securities with equal betas. This expected return $E(k_j)$ thus becomes the opportunity cost of capital for investments with risk β_j. If expected returns from a security were to rise, the security's market price would rise sufficiently to restore $E(k_j)$ to its former (equilibrium) level. Thus $E(k_j)$ would not change if investors' earnings expectations for security j changed. Only a change in the security's risk (β_j), or in market conditions [(r_f, $E(k_m)$)], would change the cost of capital.

Rail stocks have enjoyed a tremendous bull market this year. It seems clear to me that investors' expectations of future rail profitability have increased greatly. But, as shown above, increasing share prices that reflect only increased expectations on the part of investors do not imply a change in the cost of equity capital. The cost of equity capital is a function of perceived risk and of security market conditions. So increased investor earnings expectations, by themselves, have no impact on the cost of equity capital.

There is no way to statistically demonstrate that the recent rise in rail stock prices reflects only a change in investor expectations. Clearly, investors' views of rail stocks have changed dramatically during the past year, and rail regulatory reform is partially responsible. For some stocks, it is equally clear that the increased value of natural resource holdings has also pushed up share values. The boom in export coal has helped some rail share prices as well. But nowhere do I see significant cause for investors to lower their risk assessments for rail securities. As a result, I do not believe that regulatory reform will affect the cost of capital to the railroad industry.

Impact on Availability of Investment Capital

If rail regulatory reform does indeed lead to increased rail profits, then it follows that internal cash generation will be increased and more equity capital will be available for investment. Until very recently, internally generated funds were the only source of equity capital available to most railroads. Financial managers and investors look with disfavor on new equity issues priced below book value. Limited profitability also served to reduce the amount of debt that the railroads could safely carry and, thus, limited the availability of debt capital as well. Increased internal cash generation will increase the amount of equity capital available for new investment and strengthen balance sheets enough to allow increased borrowing.

Another source of equity capital is opening up to railroads. Increased investor expectations have recently increased rail stock prices significantly. In fact, recently, several railroads have successfully sold new equity-related securities. This has been a healthy trend and has encouraged and enabled greater railroad capital investment. Class I railroads' capital spending nearly doubled between 1976 and 1979. Increases in investor expectations have not lowered the industry's cost of capital, but they have increased the availability of capital to the industry.

General Impact

Three significant factors affect the general impact of the trends noted here:

1. The returns, but not the risks, on many rail investment projects are likely to be improved by rail regulatory reform.
2. The cost of capital to the industry is not likely to be significantly affected by regulatory reform.
3. The anticipation by investors of significantly increased rail earnings has made greater amounts of investment capital available to the industry.

Thus, the industry will have more, but no-less-expensive, investment capital available to it for investment in projects that will probably be somewhat more attractive. Clearly this implies a significant increase in rail capital spending.

IMPACT ON INDIVIDUAL TYPES OF NEW INVESTMENTS

The following discusses the likely impact on each of five different categories of new investment. No project fits neatly into just one of these categories, but they are useful for conceptual purposes. The five categories are maintenance, cost reduction, capacity increases, revenue increases, and regulatory requirements.

Maintenance

Maintenance is not usually treated by accountants as

a capital expenditure. In the railroad industry, of course, a portion of fixed plant maintenance spending gets booked as capital, but most is treated as an operating expense. Functionally, I believe that maintenance is a capital expense. Maintenance represents resources invested now in order to obtain some benefit in the future. In the case of locomotive overhauls or track rehabilitation, those benefits are expected to be received for some years. These long-lived maintenance expenditures are functionally no different than many capital expenditures, and I believe they should be viewed in the same way. Earlier in this paper, I discussed deferred maintenance as the rational way to reduce plant capacity in response to declining profitability. It seems obvious that, if rail regulatory reform improves rail profitability, maintenance expenditures will be increased as well.

Cost-Reducing Projects

Rail regulatory reform will not increase the attractiveness of cost-reducing projects, but it will increase the funds available for them. Also, I believe that improved rail profitability will generate more optimism among rail employees and managers, and this is likely to lead to an increase in investment in cost-reduction projects as well.

Projects to Increase Capacity

It seems clear that these expenditures will become more common if the industry is successful in winning back traffic from other modes. The extent to which the industry will be successful in this area is dependent on many factors far beyond the scope of this paper. I will only point to the obvious--the railroads will increase capacity as required if profitable traffic is there.

Investments Required by Regulations

By this, I have in mind safety and environmental regulations, not economic regulations. There should be no direct connection between rail regulatory reform and increased spending on environmental or safety projects, but some indirect effects are possible. Improved railroad profitability could conceivably make the industry a more vulnerable target for those who push uneconomic expenditures in the name of increased safety. I hope that government will resist such pressures.

CONCLUSION

I see a potential for significantly increased railroad capital spending during the next decade. This increase has already begun, as a result of expectations of increased rail profitability. But expectations will not sustain an investment boom for very long. The 1980 act must be implemented in a manner that leads to improved rail profitability. The 1980 act will probably turn out to be only a good first step in the process of restoring rail financial health. Much hard work remains.

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Implications of Regulatory Reform for Intermodal Competition

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The Motor Carrier Act of 1980 will probably contribute only minimally to improved vehicle use and associated operating efficiency and will do little to strengthen the competitive position of motor carriers. However, the dynamic effects of increased competition from liberalized entry provisions and a greater emphasis on independent pricing will exert pressure for rate decreases, thus increasing the competitive strength of motor carriers. The overall effect may be some rather modest diversion of traffic from rail to truck. Given the revenue needs of the railroads and the context and objectives of the Staggers Rail Act of 1980, rate increases will almost certainly predominate over decreases in the post-legislation period due to provisions dealing with profit-maximizing freedom, the elimination of rates below cost, and surcharges. The Staggers Rail Act has little implication for costs and service performance. The contract rate provisions of the Staggers Rail Act may be more significant competitively than the pricing flexibility provisions. Experience with contracts is thus far too limited to generalize about their likely future impacts.

During 1980, the U.S. Congress passed and the President signed into law the Motor Carrier Act of 1980 and the Staggers Rail Act of 1980, two reform measures designed to reduce government regulation and place greater reliance on competitive market forces to determine the quantity, type, and price of available transportation services. The objective of this paper is to assess the implications of these measures for intermodal competition.

The analysis reviews the manner in which both acts influence the internal structure of the respective modes (i.e., rail, truck, and coordinated rail-truck or piggyback). From these direct effects, intermodal implications can be determined.

Some critical questions considered are the manner in which the legislation changes the efficiency of the respective modes and, hence, influences the prices and services each makes available. Also, the analysis includes an assessment of various provisions with direct impact on existing pricing strategies and levels for each mode. The effects of the legislation on each mode are then combined to determine the intermodal consequences. A major consideration is the sensitivity of traffic allocations to