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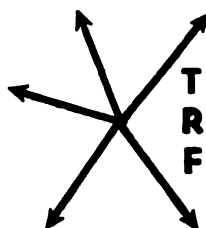
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TRANSPORTATION RESEARCH FORUM

The Value of Operating Rights in Regulated Trucking: Paradigm Lost

by David R. Kamerschen* and Chris W. Paul II*

A RECENT STUDY by Milton Z. Kafoglis¹ has received considerable publicity since its release on June 9, 1978.² His thesis is that in four decades of regulation the Interstate Commerce Commission has turned vigorous competition into monopoly. The proof for his thesis is based on the "large" dollar sums truckers are willing to pay for ICC-approved operating rights held by other carriers.

The purpose of this reply is to comment on the narrower issues of interpreting profitability and the value of operating rights (hereinafter ORs) in regulated trucking. We are skeptical of both the underlying implicit paradigm and the interpretation of the empirical results in Mr. Kafoglis' study. While he recognizes some of these deficiencies, he fails to emphasize their significance. There are several points in his study with which we would agree. But, on the balance, it is our maintained hypothesis that his conclusions are much stronger than are warranted by his study. That is, many of his stronger conclusions can be said to be unproven rather than necessarily wrong.

KAFOGLIS' CONCLUSIONS

Within the COWPS-inspired study, Professor Kafoglis concluded that shipping goods by regulated motor carriers is excessive, that truckers who are granted new operating rights receive large windfall profits, that those who purchase existing rights received excess returns on them over time, and that large payments must be made to overcome route inflexibilities.³

While Mr. Kafoglis does not try to estimate the value of ORs, he does maintain that they are "huge" and represent the capitalized value of the "excessive" returns they enable owners to earn.

His evidence on the first point consists largely of the following facts: (1) A 1974 American Trucking Association report described these ORs as the industry's "most important asset," the amounts paid for these ORs represent-

ing approximately 15% to 20% of the annual revenue produced by these authorities. (2) According to ATA over the ten-year period, 1963-1972, total investment in ORs shown on the balance sheet for Class I common carriers of general freight rose from about \$65 million to about \$300 million, a compounded rate of approximately 16 percent per annum. He avers the \$300 million figure is a vast understatement since book values only rise when rights were sold and showed up on the books of the new holders at higher prices, leaving existing rights not recently traded undervalued. "For example, Associated Transport, Inc., carried operating rights on its balance sheet at \$976,000 but sold them in 1976 at public auction for \$20.6 million. The same year, Eastern Freightways, Inc., sold rights carried on its books at \$450,000 for about \$3.8 million;"⁴ (3) the ICC recently released information showing 43 transactions in ORs from 1967 to 1971, the original costs were \$776,800 and to last sales grossed \$3,884,100. Since the average length of time the ORs were held was 10.1 years, their aggregate value increased at a compounded rate of 17 percent per annum in nominal terms or a rate of 13 percent per annum in real (constant 1972 dollars) terms. It is noteworthy that Professor Kafoglis acknowledges that: "Since the sample of forty-three transactions is small and includes only operating rights that were actually sold, we should not place a great deal of confidence in the precise results;"⁵ (4) In addition to the "average gain" of 13 percent per annum on ORs, it had an after-tax return on investment of 9 to 17 percent which "exceeds that earned by public utilities and compares quite favorably with results in unregulated markets."⁶ He concludes that: "Given the degree of protection from competition that is inherent in a regulated industry and the low risk of failure, this return—putting it mildly—seems high."⁷ (5) Dr. Kafoglis, by his own admission, has even weaker evidence supporting why ORs should increase in value over time. "A continuous rise in the value of an operating right suggests that the present value of the stream of excess profits becomes successively higher each year and that this had not been predicted (that is, not capitalized)."⁸ He admits he has no obvious answer to

*The authors are Professor and Assistant Professor of Economics at the University of Georgia, respectively.

what has caused this constant reevaluation upward in the stream of excess profits, but he nonetheless offers two unvalidated possibilities: (a) rates or return may continually exceed the cost of capital required to maintain firms in the industry; and (b) inflexible route structures may become inefficient over time, leading to a market for the trading and reshuffling of ORs among firms seeking to improve their route structure.

Of course, if asset growth is known, such compounding would occur only as a once-and-for-all windfall increase in the value of ORs. Dr. Kafoglis offers only the following rather flaccid explanation for the compounding conundrum: "though growth can be predicted it cannot be known with certainty."⁹ Similarly, he can give no concrete explanation why the rate of increase in the value of ORs in the 43 transactions described above declined with the length of time the rights were held.

SOME CONFLICTING THEORIES AND EVIDENCE

In this section, we wish to review briefly what we regard as the major limitations in Dr. Kafoglis' study. In the interest of space, we shall keep our referencing to a bare minimum, citing only those theories or studies that are not part of the generally accepted knowledge of economists.

Elementary Risk Analysis. Basic to Kafoglis' argument is the unverified assumption that motor carrier investment requires a below-average level of return. The reasoning is that with ICC regulation of motor carriers, including the entry process, results in a reduction of risk levels below that of industries generally. Without getting into the alternative measures of risk, the assumption clearly requires a *ceteris paribus* proviso which may not hold. That is, while one aspect of regulation such as controlled entry may reduce risk, other aspects of regulation may have the opposite effect. The time required to adjust prices (regulatory lag) and the potential loss in flexibility that may come from common carriage service obligations, are two obvious aspects of regulation that tend *ceteris paribus* to enhance risk. In short, while restrictions do *ceteris paribus* require motor carrier riskness below the all-industry average, the Kafoglis study did not demonstrate that risk exposure of the motor carriers from all other sources is equal to that experienced by the average of all other industries.

Three Kinds of Risks. Economics and finance literature emphasize that firms in unregulated competitive industries are faced with a fundamental value

equation relating prospective earnings (E), risk (R) and value (V). In its simplest form, $V = E/R$, $R = E/V$, or $E = V/R$. Strictly speaking, these equations do not apply to regulated industries which have important institutional limitations on the interdependence of V , E , and R .

It is a basic tenet of economics and finance that *ceteris paribus* risk and profitability are positively related. At least three different kinds of risk are used in discussing profitability: purchasing power risk, business risk, and financial risk. Professor Kafoglis recognized almost fully the first of these, partly the second, and almost entirely neglected the third. He recognized the fact that prices and purchasing power fluctuations impose risk and he, for example, adjusted nominal capital gains (17%) on ORs and put them in real (13%) or constant (1972) terms.

Business risk is the probability that a firm's prospective business productivity, i.e., net income $\div$ total capital, will cease to be compensatory.¹⁰ Business risk is not affected by the manner in which a firm raises its capital but only by the economic factors which govern its success as a producing unit. **Financial risk** is the probability that a firm's financial productivity, i.e., owner's earnings (net income minus financial expenses) $\div$ owned capital, will cease to be compensatory. Loosely, a firm's financial risk is governed by (a) its business risk and (b) the manner in which it raises its capital, i.e., the degree of financial leverage or "gearing" in its financial structure. However, this is an oversimplification because the cost of borrowed capital, although relatively constant, is not absolutely invariable and is a determinant, albeit minor, of financial risk.

Since Kafoglis did not define risk, we can assume that he was thinking implicitly of an amalgam of all three measures. How is risk measured? Nationally recognized authors have alternatively suggested that risk to investors could be measured by volatility in earnings, book return on capital, stock prices, and rate of return on common stock (change in stock prices plus dividends). The statistical measures of the level of volatility have included variance, standard deviation, coefficients of variation, and regression coefficients of regression equations describing the relationship between rates of return on individual common stocks and rates of return on a general market index (e.g., New York Stock Exchange Index). Portfolio managers and security analysts have widely reported that risks of investments determine discount rates (costs of capital) they use

in measuring the present value of expected future cash flows from a common stock investment and/or in determining the price/earning multiple they use in calculating the intrinsic value of common stock.

Empirical Evidence on Risk in Trucking. In the end, the amount of risk experienced by any firm or industry is an empirical question. We are aware of two studies which have employed accepted quantitative financial analysis techniques to directly evaluate the risk of investment in the trucking industry. One is the *Sum of Money*¹¹ study which is discussed herein and which concluded that the trucking industry has a higher than average risk character. The other is an internal study at I.U. International, a multi-national, multi-industry, \$2 billion company, which sets "risk-adjusted costs of capital" for I.U.'s 18 subsidiaries (from 13 major industries).¹² The study concluded that trucking investments are, on average, of a higher risk nature than the aggregate of companies publicly traded over the New York and American Stock Exchanges. I.U., therefore, attaches a higher than average risk-adjustment cost of capital in reviewing the financial performance and investment proposals of its motor carrier subsidiaries.

In brief, the *Sum of Money* and I.U. studies concluded that the required rate of return on motor carrier investment is substantially above the nonregulated industry average. This differential return requirement was based on the following factors:

- (1) The demonstrated above-average risk of trucking vis a vis industry in general;
- (2) The demonstrated above-average growth in investment in trucking vis a vis industry in general, and
- (3) The demonstrated above-average financial risk faced by equity investors in motor carriers vis a vis industry in general.

While these studies are, like most economic studies, not without their infirmities, they, as yet to our knowledge, remain uncontradicted by any empirical evidence (vis a vis a priori speculation no matter how plausible). It is, therefore, worth reviewing briefly the methodology and data base employed, particularly in the *Sum of Money* study.

The *Sum of Money* study asks the following fundamental question: What is the market-determined rate of return on investment that would be achieved by a nonregulated industry which exhibits the risk and other characteristics observed for the motor carriers? In order to respond to this question, Dr. Irwin Silberman undertook a representative com-

parable earning analysis.¹³ He measured the business risk¹⁴ and growth¹⁵ characteristics of a cross-section of nonregulated industries on the one hand, and rates of return on the other. He then quantified on the same basis of measurement, business risk and growth measures for the motor carrier industry. His conclusion was that the motor carriers exhibit risk and growth characteristics that in the nonregulated sector are associated with above-average rates of return.¹⁶

It should be noted that the special data based collected for the motor carrier industry was based on consolidated financial operating results as well as "carrier only" results that are normally available from carrier reports to the Interstate Commerce Commission. The differences between these two data displays are quite important, and are discussed at length in Dr. Silberman's report. The use of consolidated data captures the impact of assets residing in affiliate and subsidiary companies that are used in the provision of transportation services. Business risk measures for trucking computed from consolidated data are below those computed from carrier-only data. This makes the conclusion that the motor carriers are subject to above-average risk a conservative one.

In order to gain an appreciation for how the actual risk measures for trucking compare with those computed for industry in general, Table 1 shows that the 5-year (1971-1975) median risk measure for the cross-section of 87 nonregulated industries was 52.23.¹⁷ Table 1 also presents risk measures, computed in the identical manner, for three study groups of carriers conducted by major motor carrier rate bureaus. Note that each of the bureau study groups' risk measures is substantially in excess of the nonregulated average (lower numerical values of the risk measure reflect lower business risk: higher numerical values reflect greater risk). It is clear that when relative risk is actually quantified in accordance with generally employed research methodology, the risk position of the trucking industry, whether measured for the entire industry (*Sum of Money*) or on a group-by-group basis, is very high relative to the broad spectrum on nonregulated industry.

Association of Sales Growth and Rate of Return on Investment. Following other researchers who emphasize the historic rate of sales growth as the indicator for capital need, the studies conducted by Dr. Silberman and his associates have also shown that the required rate of return on investment is also directly associated with sales growth. That is, firms or industries which ex-

TABLE 1
INDUSTRY RISK MEASURE
1971-1975

Median Industry Risk Measure of 87 COMPUSTAT Industries	51.23
*Central and Southern Motor Carriers	90.67
*Eastern Central Motor Carriers	91.81
*Southern Motor Carriers Rate Conference	136.97

*SOURCE: Verified statements of Irwin H. Silberman, Ph.D. included in Evidential Filings of Central and Southern Motor Freight Tariff Association, Eastern Central Motor Carriers Association, and Southern Motor Carriers Rate Conference. General Increases to become effective April 1, 1977, Table VII.

perience above-average rates of sales growth achieve above-average returns on investment so as to be able to attract the additional capital which they require in order to finance that growth.¹⁸ Though there is an abundant literature concerning the relationship of differential growth and commensurate rates of return, this factor is not considered in the Kafoglis study.

Table 2 shows that the 5-year median investment growth measures of the cross-section of 87 nonregulated industries is 9.49 percent. Table 2 also presents growth measures, computed in the identical manner, for the three major rate bureaus' study groups mentioned earlier. In each case, motor carrier growth rates exceed the nonregulated industry average, providing further evidence that the required rate of return for investment in motor carrier operations is, in fact, in excess of the non-regulated average.

Capital Structure Considerations. The issue of capital structure and its effect on required rate of return is also ignored in the Kafoglis study. Higher

leverage imposes added financial risk—above and beyond the business risk discussed earlier. Table 3 shows that the 5-year media ratio of fixed-charge debt total invested capital (long-term debt plus equity) for the nonregulated industries was 26.61 percent. Table 3 also demonstrates that the debt reliance of the motor carrier groups was significantly above that of the nonregulated average. This causes equity investors in motor carrier operations to be subjected to differential financial risk—requiring an additional risk premium.

Because of the magnifying effect of leverage (use of fixed-charge long-term debt) the comparison of the trucking industry, or any industry, to other industries on the basis of return on equity provides little useful information. The return on equity reflects both profitability and the degree of leverage. It, therefore, follows that the capital structure of each of the groups compared needs to be known in order to evaluate relative profitability.¹⁹

Some Final Points on Profitability. Four final points need to be made on the

TABLE 2
INDUSTRY INVESTMENT GROWTH MEASURES
1971-1975

Median Investment Growth Measures 87 COMPUSTAT Industries	9.49%
Central and Southern Motor Carriers	10.58%
Eastern Central Motor Carriers	11.59%
Southern Motor Carriers Rate Conference	10.53%

SOURCE: Table VIII of source cited in Table 1.

TABLE 3

WEIGHTED AVERAGE PROPORTION OF DEBT IN THE CAPITAL STRUCTURE

1971-1975

Median Weighted Average Proportion of Debt in this Capital Structure of 87 COMPUSTAT Industries

Central and Southern Motor Carriers	26.61%
Eastern Central Motor Carriers	32.48%
Southern Motor Carriers Rate Conference	34.17%

SOURCE: Table XI of source cited in Table 1.

rates of return analysis in the Kafoglis study. While mentioned, Kafoglis does not emphasize the significance of the fact that the ICC specifically precludes that the use of ORs (intangible assets) in calculating the revenue need of a carrier or group of carriers in a rate case. The removal of this dollar figure from the rate base has the effect of lowering the level of invested capital, thereby raising return figures in the remaining capital, thus limiting revenue need evidence that the carriers can take to the Commission for the justification of higher rates.

Second, any rate of profitability can only be considered excessive if it is adjusted for any risk differential. Thus, any increase in nonadjusted profitability rates in the trucking industry in recent years may simply be a premium for the greater risk and uncertainty associated with heightened attempts at deregulation.²⁰ To the extent that this greater uncertainty about the government's posture toward deregulation is unanticipated it can produce a continuous rise in the unadjusted rate of profitability. Perhaps the most tangible evidence we have on the fact as opposed to the expectation of de facto greater deregulation is the increased propensity for the Commission to act favorably on entry applications. While these new ORs are often specific and narrow as to origins and destination of traffic and the commodities to be carried the acceptance rate has increased to over 75 percent (on all dispositions).²¹

Third, it is interesting that Professor Kafoglis in discussing the "gap" in the regulated trucking industry between the actual permitted rate and the cost of capital, fails to mention the genuine dilemma facing regulatory agencies in a Averch-Johnson world. It has been verified mathematically that the larger the gap between the allowed rate of return and the cost of capital, the smaller the

regulated firm's capital hiring decisions are distorted.²² A leading textbook puts it this way:

Assuming that perfection is seldom attainable, it in effect says that the better job regulators do in equalizing allowed returns with the current cost of capital, the more they impair investment efficiency!²³

Fourth, the profitability and, therefore, the value attributed to a particular OR depends on how the new route affects the efficiency of operations of a trucking system as a whole. That is, does the route fit into the operational system in such a manner as to decrease cost and thus increase profitability? The key to answering this query is systems analysis which attempts the fine and delicate balancing act required in the synergism of combining, splitting, or adjusting a geographically dispersed system. The continuous change of traffic flows requires that a carrier system be monitored and adjusted to maintain maximum efficiency. An OR which is of little or no value to one route structure may be of considerable value to another simply because of the differences in structure of their respective systems.

Value Given to Motor Carrier ORs

The Kafoglis study focused on the growth of the book value of certain motor carrier operating authority over the past several years. There are a number of questions that need to be answered in order to evaluate accurately this growth. Only after they have been answered can an accurate determination be made as to the true magnitude of change. After a more accurate measurement has been made, the question of impact on the public can be addressed. We merely pose

some of the questions that need to be addressed before interpreting the economic significance of the level and trend in the value of ORs.

1. In all the excitement over the price paid for the purchased operating rights of Associated Transport, Inc., how should those rights of AT that attracted no bids be evaluated? (There were a substantial number).
2. Did the AT auction take place at a peak in the interest in operating authorities? Have carriers now rounded out their system? Has the extremely high grant rate for new authority reduced the demand for existing authority?
3. In figuring a growth rate in the value of authorities do a relatively few examples give an accurate picture? How are grandfathered rights accounted for in the base figure? How are rights that are advertised for sale and never receive a response valued? (It happens with both specialized and general commodities). How are the values of the operating rights that were wiped out by the recent expansion of nonregulated commercial zones factored into the base?
4. To what extent have purchase prices for motor carrier operating authority acted as a convenient method of accounting for inflation? If a terminal or other tangible assets are transferred the book value may be far below the present market value. The increase in the price of land over the past decade should be easy for all to understand.²⁴

Competition and the Value of ORs. In addition to the risk considerations in explaining rate of return presented above, there are at least two other reasons emphasized in the recent economic literature which suggest that the regulated trucking industry may not earn "excessive" returns on capital investment. Anything which affects *E ceteris paribus* (viz. assuming *R* is constant) affects *V* through the basic value equation. These two developments are the threat of entry from nonregulated trucking along with intermodal competition and quality competition that takes place between common carriers which compete on the same routes.

One of the major contentions of Kafoglis' analysis is that the regulated trucking industry is not subject to the same threat of entry or competition that characterize unregulated industries and because of this reduced risk should earn a lower rate of return. He opines that their rate of return on capital assets plus the compensation for risk should

be lower than that experienced by unregulated industries. We have already cited that the only systematic and comprehensive empirical test of risk of which we are aware shows that in fact, the regulated trucking industry exhibits higher than average risk than unregulated industries. Why did Kafoglis opine *a priori* that the opposite was the case?

A substantial portion of Kafoglis' analysis rests upon the allegation that significant entry into the regulated trucking industry is blocked. He avers that regulated truckers can continue to earn economic profits indefinitely with no fear of those returns being eroded by the entry of other firms.²⁵ While because of this territorial integrity of their ORs, motor carriers are not subject to certain types of competition, they are not insulated from other types of competition. Thus, regular route common carriers are constantly subjected to the threat of shippers resorting to contact carriage, irregular route haulers, or even acquisition of their own owned or leased trucking fleets to provide themselves with transportation services. Thus, the fact that the common carrier has gained the right to operate on certain specified routes, that certification in no way protects them from the constant threat of entry from other trucking (and modal) competition or assures them of continued demand for their services. The implication is that the threat of entry from alternative suppliers of transportation services severely restrict the ability of the regulated carrier from capitalizing on his ICC granted operating rights and universally weakens Kafoglis' case that threat of entry is not an important consideration in the analysis of purported "excessive" returns to common carriers.

Even if one were to accept the implicit Kafoglis assumption that there is no or little real threat of entry into the trucking industry in response to above normal returns, this does not in and of itself guarantee that common carriers could continue to capitalize on this condition to earn above normal returns. In fact, a large amount of recent economic literature²⁶ suggest that all that is necessary to bid away "excessive" returns is the presence of other regulated carriers on the route, a condition which existed, for example, on most of the routes in the AT public auction.²⁷ Thus, even if it is assumed that common carriers are protected by entry requirements and have the ability to control prices through sanctioned rate bureaus with ICC backing, the argument that above normal returns would result and persist is still severely weakened. Furthermore, a recent study by A. S. DeVany and T. R. Saving²⁸ has shown that there may exist

economics of scale in the production of quality in the trucking industry. That is, trucking firms with larger truck fleets and resulting greater shipping volume are able to assemble truck loads at a faster rate than their smaller competitors, giving rise to more efficient operations. By operating trucks at higher average load factors and also offering faster service to shippers, which lowers the full price paid by them, the larger carrier is capable of attracting a greater proportion of the traffic than his relative truck fleet size would suggest. This increases his profitability as his average cost would lie below that of his smaller competitor. If this is correct, it could account for a portion of the increase in value of operating rights when they are sold to operators who have already established route structure. Thus, the quality of equipment, efficiency of operations, and reliability of service, tailoring of service to the characteristics of the cargo, and the general attentiveness of carriers to shippers' needs provides a prominent nonprice competition substitute for the forms of price competition lacking under the collective rate-making found in the rate-bureau system.²⁹

It should also be remembered that there is the opportunity for some price competition within the ten major (and numerous minor) territorial rate bureaus in the motor-carrier industry. There are common carriers serving a territory that choose not to belong to their rate bureau and are not party to its rate actions. Moreover, every member is guaranteed the right of "independent action" and deviate from the rates published by other member motor carriers. Of course, contract carriers and private carriers are immune from the rates charged by rate bureaus. Contract carriers operating under specific ICC authority haul the traffic of shippers under rates negotiated between the carriers and the shippers involved; while private shippers with the resources to undertake private fleet operations exercise pressure upon these negotiated rates. Finally, there is the omnipresent threat of competition from other transportation modes—railroads for truckload traffic, airlines for speed imperative traffic, United Parcel Service for small package freight, etc.

Conclusion. What we have offered in the above analysis is an alternative explanation for the observed increase in ORs. It would seem that these alternative explanations are as plausible as those offered by Kafoglis, each of which is based on monopoly power or continued underestimation of returns to operating rights by the trucking industry. The first of these would give rise to a once-and-for-all value increase as the return

on the route certification would be properly discounted at the time of the first transaction and thus would not increase in value over time. The second explanation asks us to accept continued miscalculation (ignorance) on the part of the industry when estimating future returns.

In peroration, there is clearly a need for improved (in quantity and quality) data base and form more sophisticated testing techniques before any definitive conclusions can be reached about the economic significance of the level and trend in the value of ORs in the trucking industry.³⁰ While Professor Kafoglis has addressed himself to a very interesting problem, there is much more research that needs to be done before our zone of ignorance is chipped away to a tolerable level for reaching policy decisions.³¹

FOOTNOTES

1 Professor of Economics at the University of Florida (on leave) staff (senior) economist at the Council on Wage and Price Stability (COWPS).

2 "A Paradox of Regulated Trucking: Valuable Operating Rights in a 'Competitive Industry,' Regulation, Vol. 1, No. 2 (September/October, 1977), pp. 27-32. Unless otherwise indicated all references to Professor Kafoglis' study will be to this distilled version.

3 *Ibid.*, p. 32.

4 *Ibid.*, p. 29.

5 *Ibid.*, p. 30.

6 *Ibid.*, p. 29.

7 *Ibid.*, p. 29.

8 *Ibid.*, p. 31.

9 *Ibid.*, p. 31.

10 See, e.g., Robert W. Mayer, "Analysis of Internal Risk in the Individual Firm," *Analysts Journal*, Vol. XV, No. 6 (November, 1959), pp. 91-95.

11 The phrase "Sum of Money" comes from the fact that in ICC proceedings the carriers are required in general rate increase cases to produce evidence

of the sum of money which is needed, over and above operating expenses, to attract debt and equity capital in order to provide financial stability and the capacity to render service.

The Sum of Money study was initiated in response to a requirement by the ICC in Ex Parte MC-82, *New Procedures in Motor Carrier Revenue Proceedings*, issued in April of 1971. The research results were published in a booklet, Irwin H. Silberman, *The Sum of Money: An Assessment of the Financial Posture and Revenue Needs of Motor Carriers of General Freight*, (January 1975). The analysis in this pamphlet covered the period 1968-1972. Using the same basic methodology, Dr. Silberman has extended his data base to 1971-1975 in statements he has submitted in MC-82 rate justification statements of several motor carrier rate bureaus.

12 C. R. Carlson and M. L. Lawrence, "Beta and the Cost of Capital: The I. U. International Approach," paper presented at the 1975 (Midwest Finance Association annual meeting.

13 The basic assumption underlying this approach is that investors are risk-aversers—that is, for a given specified rate of return, investors are happier the lower risk they are required to undertake. Thus, there should be among industries, a high and positive correlation between risk and rate of return—high (low) risks and high (low) rates of return go hand-in-hand.

14 Business risk is associated with the operation of the firm and exists regardless of how the firm is financed. Silberman measures busi-

ness risk by the variance of the five-year average company around the unweighted average overall return for each nonregulated industry.

16 The growth rate was computed as the continuous compound growth rate over a ten-year period.

16 The data for the nonregulated industry study comes from the COMPUSTAT which tracks 60 items of financial information for approximately 1,800 listed and over-the-counter industrial corporations for a 20 year period. Data for the trucking industry was developed by a special study from information supplied by individual carriers.

17 Companies in regulated industries and companies with incomplete data from the COMPUSTAT tape were eliminated. The remaining companies were combined into 87 nonregulated industries.

18 The argument is that a rapidly growing industry attaining above-average profitability will find suppliers of capital committing additional capital to the industry. If the capital markets have fully adjusted to the need for additional capital, the industry (risk adjusted) profit rate should be down to the average achieved by other industries. As long as the capital market adjustment is not complete, industries that are experiencing above-average growth rates would be more likely to exhibit above-average rates of return than would industries with only average growth. While many would argue that the causality of this argument is reversed, it does appear to be a basic tenet in the finance literature.

19 Unfortunately, the Sum of Money, or any other study we know, has not investigated whether the trucking industry can borrow at different interest rates than can other industries. It is interesting that while in the original COWPS study it was stated that truckers could borrow funds at lower interest rates than other industries, this undocumented speculation was dropped in the truncated version which appeared in Regulation.

20 This same problem holds with respect to the figures on motor carrier profitability given in Kafoglis, p. 29, footnote 2. Also the financial results given in the *Business Week* annual report 1971-1976 were for ten of the best trucking companies in the United States and are hardly "representative" firms. Our earlier caveat regarding financial leverage applies whenever rates of return on equity are compared.

21 The figures shown in Appendix A are taken from a statement of A. Daniel O'Neal, Chairman, ICC, on September 27, 1977. While the rejection rates are always below 20% on all dispositions the acceptance rates are not always above 80% unless the category Dismissed/Withdrawn is included as not rejected. It could be argued that the Dismissed/Withdrawn category should be lumped with denials rather than with acceptances.

22 See, e.g., Frederic M. Scherer, *Industrial Market Structure and Economic Performance* (Chicago: Rand McNally and Company, 1970), Chapter 22 and Appendix to Chapter 22. The more a firm's production function exhibits increasing returns to scale (and the more elastic is demand in the neighborhood of the Averch-Johnson equilibrium) the less likely that increases in the gap will lead to the paradoxical decline in the capital labor distortion. With constant returns to scale, the capital/labor distortion increases with decreases in the gap over all relevant positive values of output. Proponents of deregulation in trucking generally argue that trucking is subject to constant (and not increasing) returns to scale, which means that success in lowering the excessive returns gap will inexorably be associated with greater allocative inefficiency. On the other hand, the A-J effect assumes that the firm will increase capital be-

cause its allowed earnings will then be allowed to increase. But since trucking is overall regulated (i.e., if all southern truckers as a group are allowed to earn, say, 13%), then a small trucker may not incorporate the A-J bias into his decision making. If there are 100 firms and one firm acquires an extra \$1000 capital, its earnings will increase only by 13% of \$10, not by 13% of \$1000, as would happen if the firm were itself regulated. Excess capital acquired by any one firm will have (much) incentive to acquire such capital. Of course, where one firm dominates, in capital terms, a rate bureau, the A-J effect should have some pittance.

23 *Ibid.*, p. 553.

24 The ICC study of the 43 transactions involved no assets beyond the ORs.

25 See Kafoglis, pp. 28-29.

26 See Arthur S. DeVany, "The Effect of Price and Entry Regulation on Airline Output, Capacity and Efficiency," *The Bell Journal of Economic and Management Science*, Vol. 6, No. 1 (Spring, 1975), pp. 327-345; Arthur S. DeVany, "Uncertainty, Waiting Time and Capacity Utilization—A Stochastic Theory of Production Quality," *Journal of Political Economy*, Vol. 84, No. 3 (June, 1976), pp. 623-641; George W. Douglas and James C. Miller, "Quality and Competition, Industrial Equilibrium and Efficiency in the Price Constrained Airline Market," *American Economic Review*, Vol. 64, No. 4 (September, 1974), pp. 657-669.

27 The public auction of the operating authority of Associated Transport, Inc. has drawn the attention of Kafoglis and many writers. We have investigated several pieces of the authority that were purchased. The results of this analysis are shown in Appendix B. The purchasing carriers, the amount paid, and the description of the route purchased are listed first. Next the carriers that serve both major markets at each end of a traffic lane are displayed.

28 "Product Quality, Uncertainty, and Regulation: The Trucking Industry." *The American Economic Review*, Vol. 67, No. 4 (December, 1977), pp. 583-594. In evidence of the effect of scale on the cost of trucking is mixed. For a survey of the literature, see Garland Chow, "The Cost of Trucking Revisited," (presented) at a seminar on trucking, sponsored by the Department of Transportation, Northwestern University National Academy of Science, April 7-8, 1977. (Publication of the Proceedings are forthcoming).

29 While we do not have the space within this paper to assess the costs and benefits (such as uniformity, stability, and equity) of the structure of rates forged by motor-carrier rate bureaus, it can be demonstrated that under certain types of demand functions profits are higher with competitive pricing than with a cartel which stabilizes price at the mean competitive level! See, e.g., Frederic M. Scherer, *Industrial Market Structure and Economic Performance* (Chicago: Rand McNally, 1970), Ch. 7, especially pp. 202-206.

30 Ray Kroc (with Robert Anderson) in his book *Grinding It Out* which describes the growth of the McDonald's hamburger chain indicates that the value of franchises were \$950 in 1955, \$81,500 in 1965, and about \$200,000 in 1975. Why the increase? It appears that even absent regulation we do not have a complete explanation about the determinants of capitalization.

31 For instance, recognizing there is a separate market for the capital value of ORs and of operating assets, it can be argued that there are three questions involved in ORs: (1) What determines the rate of return on truck assets other than ORs? (2) Absent monopoly, why do ORs have any value? and (3) Absent ignorance, why would the return on ORs be higher than the rate of return on other assets?

APPENDIX A

DISPOSITION PROFILE OF PERMANENT MOTOR CARRIER OPERATING RIGHTS CASES

FISCAL YEAR	TYPE DISPOSITIONS	ALL DISPOSITIONS	ON THE MERITS ONLY	NEW CARRIERS	ON THE MERITS ONLY
Fiscal 1977	Full/Partial Grant	4329(75.3%)	4239(83.6%)	651(70.9%)	651(81.2%)
To Date	Denied	846(14.7%)	846(16.4%)	151(16.4%)	151(18.8%)
10/01/76-6/30/77	Dismissed/Withdrawn	575(10.0%)		117(12.7%)	
TOTAL		5750(100.0%)	5175(100.0%)	919(100.0%)	802(100.0%)
Transition Quarter 07/01/76-09/30/76	Full/Partial Grant	958(73.2%)	958(85.0%)	156(69.7%)	156(83.4%)
	Denied	169(12.9%)	169(15.0%)	31(13.8%)	31(16.6%)
	Dismissed/Withdrawn	181(13.9%)		37(16.5%)	
TOTAL		1308(100.0%)	1127(100.0%)	224(100.0%)	187(100.0%)
Fiscal 1976	Full/Partial Grant	4710(69.8%)	4710(79.7%)	468(83.9%)	468(93.6%)
	Denied	1200(17.8%)	1200(20.3%)	33(5.9%)	33(6.4%)
	Dismissed/Withdrawn	836(12.4%)		57(10.2%)	
TOTAL		6746(100.0%)	5910(100.0%)	558(100.0%)	519(100.0%)
Fiscal 1975	Full/Partial Grant	4012(70.0%)	4012(86.4%)	516	*
	Denied	631(11.0%)	631(13.6%)	*	*
	Dismissed/Withdrawn	1093(19.0%)		*	*
TOTAL		5736(100.0%)	4643(100.0%)		
FISCAL 1974	Full/Partial Grant	3911(71.3%)	3911(82.1%)	505	*
	Denied	85(1.5%)	85(17.9%)	*	*
	Dismissed/Withdrawn	725(13.2%)		*	*
TOTAL		5487(100.0%)	4762(100.0%)		

*Date unavailable for earlier years.

SOURCE: Statement of A. Daniel O'Neal, Chairman, Interstate Commerce Commission Before the Subcommittee on Special Small Business Problems of the House Committee on Small Business on the Regulatory Problems of the Independent Owner-Operator in the Nation's Trucking Industry (September 27, 1977).

APPENDIX B

Great Coastal Express

General commodity regular route between New York, NY and Baltimore, MD, Washington, DC, Roanoke, VA, Richmond, VA, Lynchburg, VA and Norfolk, VA. Extensive intermediate authority in New Jersey, Pennsylvania and Virginia. \$1,600,000.

Carriers Serving New York, NY and Baltimore, MD

AAA Trk.	Consol. Frt	Eastern E	John B	P-I-E	Smith & S
Akers Mtr.	Callahan	Eastern Fr	Jones Mtr	Pilot	Spector
Arrow	Carolina	Eazor	Klose	Preston	TIME-DC
Atkinson	Charlton	Elliott B	Lombard	Quinn F	Taynton
B&P Mtr	Colonial	Falwell	Maislin	R-C	Thurston
Bair	Cooper-J	Glosson	Maryland	Red Star	Transcon
Blue Line	Cooper M	Hall's Mtr	Mercury Mtr	Roadway	Wern Cont
Blue R	Cowan	Helm's	Mtr Frt Exp	Ryder	Wilson
Boss-Linco	Davidson	Hemingway	NAV-GEX	S&N	Wooleyhan
Bowman	Dorn's	IML	Nelson Frt	St. John	Wooster
Branch	Drake	Int. Sys.	Ohio Frt	Servi. T	Yale
Bryans Mtr.	ET&WNC	JML	Old Dom	Smith, E. F.	

New York and Washington, DC Commercial Zone Points

AAA	Carolina	Elliott B	Kloze	R-C	Taynton
Akers	Charlton	Falwell	Lombard	Red Star	Thurston
Arrow C	Cowan	Hall's Mtr	Maislin	Roadway	Transcon
Atkinson	Davidson	Helm's	Mercury Mtr	Ryder	Wern Cont
B&P Mtr	Dorn's	Hemingway	Mtr Frt Exp	St. John	Wilson
Bair	Drake	IML	Nelson Frt	Servi. T	Wooster
Blue Line	ET&WNC	Int. Sys.	P-I-E	Smith, E F	Yale
Boss-Linco	Eastern E	JML	Pilot	Smith & S.	Yellow
Branch	Eastern Fr	John B.	Quinn F	Spector	
Bryans, Mtr	Eazor	Jones Mtr		TIME-DC	

New York and Roanoke, VA

Blue R	Glosson	Hemingway	Pilot	Thurston	Wilson
Falwell	Hall's Mtr	JML	Spector		

APPENDIX B (continued)

New York and Richmond, VA

B&P Mtr	Celonia	Henry C.	Mercury M	Pilot	Smith & S
Boss-Linco	Davison	JML	Mtr Frt Exp	Preston	Thurston
Bowman	Glosson	Maislin	Old D	R-C	Transcon
Bryns	Hall's Mtr	Maryland	P-I-E	Roadway	Wilson
Carolina	Hemingway				

New York and Lynchburg, VA

Falwell	Hemingway	Jones M	Pilot	Spector	Thurston
Hall's Mtr	JML	Maryland			

New York and Norfolk VA,

Bowman	Hall's Mtr	Maislin	Pilot	Roadway	Spector
Carolina	Hemingway	Old Dom	Preston	S&N	Thurston
Davidson	Henry				

J. D. McNichols Trtr. Co.

Regular Routes between Toledo, OH and Chicago, IL serving most intermediate points and some off-route authority at specified points.
 \$550,000.

ABF	Consol Frt	GLX	Long T	P-I-E	Term. Tr
ATL	Carolina	Gateway	MX	Ringsby	Transcon
AdmMerCole	Gen Tra	Gordons	McLean	Roadway	Transp M
Akers	Clairmon	ICX	Mead, WL	Ryder	Tucker
All-American	Cooper-J	IML	MtrFrtExp	Ship D	Wern Cont
B&P Mtr	Dohrn	Indianhead	Motor Exp	Spector	Wolverine
Bowman	ETMF	Int. Sys.	Murphy	Suburban	Yellow
Brada M	Eazor	Jones M	NAV-GEX	TIME-DC	Smith Tran
Brown Tra					

APPENDIX B (continued)

Wilson Freight

Regular Route, General Commodity Authority between Atlanta, GA and the Commercial zone of Cincinnati, OH. No intermediate authority.
Off route authority at Watts Bay Nuclear Plant at or near Spring City, TN. \$2,450,000.

ABF	Cam Six	Gateway	Mason & D	Roadway	TIME-DC
AdmMerCole	Carolina	Gordons	McLean	Ryder	Term. Tr
Consol Frt	ETMF	Int. Sys.	Overnite	Smith Tran	Transcon
CW	GHE	Lee Way	P-I-E	Spector	Wilson

Mushroom Transportation

General Commodities, with the usual exceptions—Regular Routes between Baltimore, MD and Cumberland, MD.
Between Pittsburgh, PA and Cumberland, MD serving intermediate and off-route points within 15 miles of Pittsburgh, \$325,000.

Carriers serving Baltimore and Cumberland

Charlton	Houff	McLean	Old D	Suwak	Wilson
Hall's Mtr	JML	MtrFrtExp	P-I-E	Thurston	Wooster
Hemingway	Maryland	Nelson Fr	Smith Tran	Wern Cont	Yale

Carriers serving Pittsburgh and Cumberland

Charlton	JML	McLean	P-I-E	Suwak	Wern Cont
Houff	Maryland	MtrFrtExp	Smith Tran	Thurston	Wilson

APPENDIX B (continued)

Lee Way

General Commodity regular route all intermediate points between Buffalo, NY and Cleveland, OH, \$450,000.

Buffalo, NY & Cleveland, OH Commercial Zone Points

	Int. Sys	MtrFrtExp	Pilot	TIME-DC
ABF	Cooper-J	Mtr Ex	Preston	Term. Tr
Boss-Linco	Detroit-P	Murphy	Roadway	Transcon
Brada Mtr	Eazor	Mushroom	Ryder	Wern Cont
Branch	GLX	NAV-GEX	Safeway	Wilson
Consol Frt	Gateway	Ohio F	Ship D	Yellow
Cam Six	Hall's Mtr	P-I-E	Spector	
Carolina	Helm's			

Also purchased general commodity, regular route, many intermediate and off-route points.

Extensive coverage in NC, SC, VA, northern GA, tackable at Roanoke, VA and/or Richmond, VA.

Did not have previous authority in NC, SC, VA. Did operate from Atlanta to Gadsen, Huntsville, Birmingham, MS.

Cooper Jarrett

General Commodities—Regular Route between Chicago, IL and Milwaukee, WI with intermediate authority. (Scherer Freight Lines MC-21571)

Carriers serving Chicago and Milwaukee

	ETMF	Key Line	Murphy	Spector
ABF	Eazor	Knowx Mtr	NAV-GEX	Strickland
AdmMerCole	Gateway	London	Neuendorf	Term. Tr
Advance T	Glenden	Leverly	OK Mtr	Transcon
Advance U	Graf.-M	Mayfield	Ok Tru	Wern Cont
All-American	Hart Mtr	McLean	P-I-E	West Shore
Allard	Checker E	Mid-A	Roadway	Yellow
B&L	Clairmont	Mid-C	Smith Tran	Ryder
B&P Mtr	Cooper-J	Motor Exp		
Briggs T	Dohm			

SOURCE—ATA American Motor Carrier Directory, Atlanta: Gulde Services, Inc., Spring 1977