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INDUSTRIAL ORGANIZATION



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ABSTRACT

Does the Separation of Regulatory Powers Reduce the Threat of Capture? Evidence from the U.S. Maritime Bureaucracy*

Recent economic theories have investigated the susceptibility of diverse public bureaucratic structures to capture by private industry. In particular, Laffont and Martimort (1999) propose that the separation of regulatory powers will reduce the threat of capture. We analyse investor reaction to a reorganization of the United States maritime bureaucracy that created two separate agencies to carry out the duties previously assigned to a single entity. We find strong evidence that investors interpreted the agency split as detrimental to ocean carriers, supporting the theory advanced by Laffont and Martimort. We also find some evidence that net exporting industries benefited from separation.

JEL Classification: H1, K2 and L5

Keywords: capture, regulation and shipping industry

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Government regulation of industry is a salient feature of modern economies. Since Stigler's (1971) classic article on the subject, economists have devoted much attention to the question of the degree to which private interests might capture regulatory agencies and legislators. More recently, theorists have begun to apply the tools of information economics and the economics of organization to analyze how the structure of bureaucratic agencies can affect the incentives of bureaucrats and industry to collude with one another to the detriment of social welfare. In particular, Laffont and Martimort (1999), building on the framework introduced by Laffont and Tirole (1991), argue that non benevolent government agencies with multiple responsibilities in the regulation of an industry – for example, rate regulation and environmental regulation – have more incentives to collude profitably with the regulated industry than agencies with narrower mandates. They propose that the separation of regulatory powers will reduce the threat of regulatory capture. This proposal has potentially large welfare implications, given the extent of regulation and the breadth of many regulators' directives.

Hypotheses of this nature are inherently difficult to test. A reasonable way forward is to accumulate case studies of regulatory change that can provide insight so as to inform theory, and perhaps ultimately policy. Even if a case of regulatory separation is located, finding an adequate measure of regulatory performance is often very difficult, and the equilibrium level of regulatory activity is subject to many "real world" factors that are difficult to model. One feasible empirical strategy is to examine the reaction of investors to changes in the likelihood of regulatory separation by carrying out an event study.

In this paper we analyze investor reaction to a reorganization of the United States maritime bureaucracy that assigned two different responsibilities to separate agencies that previously were carried out by a single entity. The ocean shipping industry in the United States has been granted conditional (upon agency approval) antitrust exemption since 1916, and firms have been able to apply for subsidies since 1936. From 1936 to 1961, a single agency was charged both with regulating shipping cartels so as to insure trade was fostered and not hindered, while at the same time awarding subsidies with a view toward maintaining a healthy U.S. merchant marine to meet wartime contingencies. The intrinsic difficulties for a single agency to reconcile these two potentially conflicting objectives led to calls for the assignment of the two functions to separate government agencies. In 1961, a reorganization of the maritime bureaucracy assigned the regulatory functions to the Federal Maritime Commission and the subsidy functions to the Secretary of Commerce and the Maritime Administration, an agency within the Department of Commerce. This bureaucratic structure persists to the present.

The political process leading to the adoption of the reorganization plan was highlighted by several key events. We examine whether the events that signaled an increased likelihood of the separation of regulatory powers resulted in abnormally low stock returns for shipping companies. We find strong evidence suggesting that investors believed that the separate agencies would regulate and disburse subsidies more strictly than the predecessor agency, in support of the theory advanced by Laffont and Martimort. Although an estimation of social welfare is not possible, we also are able to examine how these events affected net exporting industries, as customers of the shipping industry. If the net effect of separation was to raise freight rates (more restrictive subsidies

outweighed stricter rate regulation), then we would expect that net exporting industries would have been harmed by separation. In contrast, if the effect of reform was to lower freight rates, net exporting industries would have benefited from separation. Although the evidence is less clear-cut, it suggests that net exporting industries benefited from separation.

The Federal Maritime Board.

Laffont and Martimort (1999) present a theoretical model in which regulators are not benevolent maximizers of social welfare, but rather are self-interested agents. Regulators collect information about regulated firms, and this information may be used to improve social welfare or to “pursue personal agendas by colluding with the regulated firms.” When only a single regulatory agency oversees an industry, it acquires a plethora of information that can be used for either of these purposes. In contrast, when separate regulatory agencies oversee distinct aspects of a regulated industry, Laffont and Martimort demonstrate that the regulators will be less successful at colluding with the regulated firms. This occurs because separation reduces agencies’ discretion, because one agency does not know what information that the other has observed. Also, with less information, the potential gains from collusion are more limited.

During the 1950s, the Federal Maritime Board was the primary bureaucratic agency responsible for maritime issues. The Board consisted of three members appointed by the president, and a staff of nearly 3000 civil servants.¹ It carried out both regulatory and promotional functions. As specified by the Shipping Act of 1916, as amended, ocean carriers’ price-fixing and other cooperative agreements are exempt from the antitrust

¹ U.S. House Subcomm. on Antitrust (1962), p. 396; Lawrence (1966), p. 257.

laws, so long as those agreements are filed with and approved by the Federal Maritime Board. The Shipping Act ordered that the Board approve agreements except those that are “unjustly discriminatory or unfair as between carriers, shippers, exporters, importers, or ports, or between exporters from the United States and their foreign competitors, or to operate to the detriment of the commerce of the United States.”² The Federal Maritime Board also had limited powers for regulating freight rates, and was responsible for insuring that carriers did not employ certain practices (deferred rebates and “fighting ships”) explicitly prohibited by the Shipping Act.

The Board also was empowered to decide how to allocate vessel construction and operating subsidies to U.S. ocean carriers, as specified by the Merchant Marine Act of 1936. The former were known as construction differential subsidies, and were subsidies to carriers for the purchase of vessels to be constructed in U.S. shipyards. Operating differential subsidies were granted to ocean carriers for the operation of their U.S. flag vessels in foreign commerce. The precise amount of the subsidies awarded depended upon the disparity between the foreign and U.S. costs of constructing (operating) vessels. It was the responsibility of the Federal Maritime Board to determine those differences.³ The goal of the Merchant Marine Act was, through government assistance, to maintain a U.S. flag merchant fleet and shipbuilding capacity in case of a war.⁴ Over the period 1936-1960, the construction subsidy amounted to over \$600 million, and the operating subsidy more than \$1 billion.⁵

² Shipping Act, 46 U.S.C. 23 sec. 814.

³ U.S. House Subcomm. on Antitrust, p. 323.

⁴ Lawrence, p. 253.

⁵ U.S. House Subcomm. on Antitrust, pp. 350, 355.

With respect to regulations, the Federal Maritime Board operated as an independent agency. The Secretary of Commerce, however, laid down general policies regarding subsidies. Nonetheless, the Board solely determined which firms received subsidies and in what amount. Although the total amount of construction subsidies that the Board could administer was constrained, it faced little effective restraint with respect to operating subsidies.⁶

The Federal Maritime Board, in carrying out its functions, collected two basic types of information. In its capacity as regulator, it obtained detailed information on the degree of collusion and competition on various trade routes. In its capacity as grantor of subsidies, it collected financial data from domestic and foreign firms. In this case, the two types of information were highly complementary – the financial data might indicate the benefit that firms might expect from a particular agreement, and knowledge about market power and competition on a specific route might help determine the least-cost subsidy necessary to meet the goals of the legislation.

A regulator charged with the dual responsibility of industry caretaker, and possessing inside information on the financial status and business practices of firms, clearly would have tremendous opportunities to collude with regulated firms in the spirit of what Laffont and Martimort suggest. In 1959 and 1960 the Subcommittee on Antitrust of the U.S. House of Representatives conducted an investigation of the ocean freight industry and the Federal Maritime Board's performance. The subcommittee, chaired by Emanuel Celler, concluded that the Board had been negligent in carrying out its regulatory responsibilities. Congressional investigators found that there was "a vast array of unapproved agreements between lines" that had never been filed with the Board, and

⁶ Lawrence, pp. 276-77.

the Board had not once in its entire history exacted the statutory fine for non compliance.⁷ The Celler committee also noted that the Board had refused to grant subsidies unless cartel rules and rates were followed, and had censored staff members that were critical of shipping conferences. Moreover, the Board had not awarded subsidies to any independent, non conference line.⁸ Celler stated that the “record of regulatory neglect by the Federal Maritime Board is unparalleled.”⁹

Information flowed freely between the Board and the industry, with exchanges taking place not just in formal regulatory hearings, but also informally at ship launchings and industry club meetings.¹⁰ The Board apparently took few substantive actions without previously consulting with the industry, and it had no standards to regulate ex parte contacts.¹¹

If one is to believe that the Board was colluding with the ocean freight industry, what tangible benefits could it expect? Laffont and Tirole (1991) observe that one possible payoff the industry could make is future employment for board members and staff.¹² There is circumstantial evidence on this score - former employees of the Board frequently found positions as chairmen of shipping conferences and steamship company executives.¹³

⁷ U.S. House Subcomm. on Antitrust, p. 360.

⁸ U.S. House Subcomm. on Antitrust, pp. 377-78.

⁹ U.S. House Subcomm. on Antitrust, p. 359.

¹⁰ Lawrence, pp. 301-2.

¹¹ Landis (1960), p. 65.

¹² See also Wils on (1989), and Breyer and Stewart (1979).

¹³ U.S. House Subcomm. on Antitrust, p. 378. It should be noted that Congress found no evidence of bribery.

The Separation of Powers.

The catalyst for the Subcommittee on Antitrust's investigation was a 1958 Supreme Court decision prohibiting shipping conferences' use of dual-rate (exclusive loyalty) contracts, a practice that had been routinely approved by the Federal Maritime Board.¹⁴ When legislation was introduced in February 1961 that would permanently legalize dual-rate contracts, the Subcommittee on Antitrust held hearings. It was during these hearings, in early March, that Emanuel Celler spoke out in favor of assigning the promotional (subsidy) functions to the Maritime Administration and restricting the Board's activities to regulation of cooperative agreements and rates. Celler said that the split would protect the interests of exporters, who had been hurt by the Board's lax regulatory approach.¹⁵

On March 31 Celler released to the public a letter that he wrote to President Kennedy (on March 16) calling for the separation. The press reported that the proposal had considerable support at the White House, and that James M. Landis, President Kennedy's special assistant for regulatory agencies, was working on the specifics of a plan that would separate regulatory and subsidy responsibilities.¹⁶ The *Journal of Commerce* reported the negative publicity the Board received as a result of the Antitrust Subcommittee's hearings, and that the separation plan would likely be approved by Congress.¹⁷ At this stage, however, no details were provided on the proposed reorganization beyond the separation of regulatory powers.

Over the next two months Celler and the subcommittee staff, working together with Landis, developed the plan that would become law. President Kennedy presented

¹⁴ Federal Maritime Board v. Isbrandtsen Co., Inc., 356 U.S. 481 (1958); see also Auerbach (1959).

¹⁵ *New York Times*, March 9 1961, p. 59; *Journal of Commerce*, March 10 1961, p. 24; *Journal of Commerce*, March 13 1961, p. 12.

¹⁶ *Washington Post*, April 2 1961, p. 2, *Journal of Commerce*, April 3 1961, pp. 1, 11.

¹⁷ *Journal of Commerce*, April 3 1961, pp. 1, 11.

the plan in a message to Congress on June 12 1961. Kennedy stated, “Intermingling of regulatory and promotional functions has tended in this instance to dilute responsibility and has led to serious inadequacies, particularly in the administration of regulatory functions.”¹⁸ The plan would eliminate the Federal Maritime Board and establish a five-member Federal Maritime Commission charged with the regulatory duties. The Maritime Administration would administer the subsidy program, under the direction of the Secretary of Commerce. The plan would go into effect automatically after sixty days unless either the House or the Senate disapproved it.

It is interesting that the shipping industry did not flatly oppose the reorganization plan. Samuel Lawrence, in his study of U.S. shipping policy, stated, “The publicity given to the Celler Committee’s findings made it impolitic for American shipowners to oppose the 1961 reorganization proposal...However, the industry clearly had little taste for separating regulatory from promotional functions.”¹⁹ The *Journal of Commerce* did not alter its previous forecast about the likelihood of separation, reporting that “it is believed at this stage that opposition will be insufficient to sidetrack [the proposal].”²⁰ Given the political atmosphere, it is not surprising that the shipping industry instead focused its objections on the concentration of power over subsidies in the hands of the Secretary of Commerce, which opponents of the plan claimed would expose the program to undue political influence. An alternative view was that more vigilant oversight by the Commerce Secretary might result in fewer subsidies, if budgetary considerations were given more weight. Lawrence reported that, in fact, “the result most feared by the

¹⁸ Special Message to Congress Transmitting Reorganization Plan 7 of 1961, June 12 1961, in *Public Papers of the President of the United States: John F. Kennedy* (1962), pp. 453-55.

¹⁹ Lawrence, p. 320.

²⁰ *Journal of Commerce*, June 13 1961, p. 13.

subsidized operators but never stated for the record was that bringing the [Maritime Administration] agency unequivocally under the Commerce Department's control would diminish their influence over its policies.”²¹

The House Merchant Marine Committee held hearings from July 11-13, and voted on July 18 to approve the plan. On July 20 the House of Representatives voted 218-184 to reject a motion to discharge from the Government Operations Committee a resolution to disapprove the plan.²² A last ditch effort by opponents failed on August 10, when the Senate defeated a resolution to reject the plan by a 35-60 margin.²³ The plan took effect August 12, but an event occurred the following week that might have assuaged concerns of industry. First, the Secretary of Commerce held a briefing on August 13 in which he said that there would be no “special change” in policy. It was also announced at the briefing that the new Federal Maritime Commission and the Maritime Administration would sign a “memorandum of understanding” providing for the exchange of certain information needed by each agency.²⁴ This type of information flow between separate agencies could mitigate the beneficial impact of separation.²⁵

Because there is substantial anecdotal evidence that early in the process observers believed that the probability the plan would be approved was very high, and that all subsequent events also would have increased the probability of the plan's approval, we might expect that the early events would have the largest impact. But we must also take into consideration the possibility that the later events may have communicated

²¹ Lawrence, p. 321. The industry preferred that subsidy decisions be made by a commission removed from the direct influence of the Commerce Secretary. This is consistent with the discussion in Moe (1990).

²² *Congressional Quarterly Weekly Report*, July 21 1961, p. 1259; *New York Times*, July 19 1961, p. 58; *New York Times*, July 21 1961, p. 9; *Journal of Commerce*, July 19 1961, p. 1.

²³ *Journal of Commerce*, August 11 1961, p. 1; *New York Times*, August 11 1961, p. 44.

²⁴ *Journal of Commerce*, August 15 1961, p. 1.

²⁵ Laffont and Martimort, pp. 256-57.

information of a qualitatively different nature. Ocean carriers effectively dropped opposition to the plan during its review by Congress, and only disputed those elements related to the administration of maritime subsidies.²⁶ Consequently, the later events (those beginning at least by mid June) should convey information not only about the approval of the reorganization plan separating the two functions, but also information about the respective roles of the Secretary of Commerce and Maritime Subsidy Board in doling out subventions. This issue is different from the separation issue raised by Laffont and Martimort, and with different empirical implications, as we discuss in the next section.

Data and Methodology.

In order to examine the hypothesis that the separation of regulatory powers was viewed by investors as reducing the probability of capture, we examine how the stock returns of ocean carriers and their customers reacted to events signaling information about the probability that separation would occur and what exact form it would take. The event study methodology has a long tradition in finance and economics, including numerous applications to the study of regulation.²⁷ It is well suited to our objective, where alternative techniques of measuring the effects of regulation are not practical.

The political process leading to reorganization, discussed in the previous section, includes several events that we examine in order to test the hypothesis about the benefits

²⁶ Especially see the testimony of John Will, Vice Chairman of the Committee of American Steamship Lines, and Ralph Wilson, member of the Federal Maritime Board, in hearings before a subcommittee of the House Committee on Government Operations and the House Committee on Merchant Marine and Fisheries in June and July 1961. Also see the testimony of C.D. Gibbon, Finance Chair of U.S. Lines and Ralph Wilson before the Senate Committee on Commerce in late July.

²⁷ See Mackinlay (1997) for a survey, and see Schwert (1981), Rose (1985), Binder (1985) and Mullin, Mullin and Mullin (1995) for applications to regulatory topics.

of separation. These events and the expected direction of their impact on ocean carriers' stock returns are listed in Table 1. We collected weekly stock prices for four subsidized U.S. ocean carriers that were members of conferences on the routes they served.²⁸ The carriers are U.S. Lines, Moore-McCormack Lines, American Export Lines, and Lykes Brothers Steamship Company. If the events transmitting information about the increased probability of separation correspond with abnormally low returns for the carriers, that would be evidence consistent with the organizational theory of Laffont and Martimort. Because the latter events also conveyed information specifically (perhaps principally) about the administration of the subsidy programs, there might be variation in how those events affect the different firms. If assigning a major role for administering the subsidies to the Secretary of Commerce meant more stringent allocation of funds, the most subsidized firms presumably would suffer disproportionately, and less subsidized firms might actually gain some competitive advantage as a result.

In order to obtain some sense of the effects of separation on customers of ocean shipping, we also collected weekly stock index values on thirty two industries that produced goods shipped in foreign trade.²⁹ These industry stock indexes were compiled by Standard and Poor, and are listed in Table 2.³⁰ If investors anticipated that separation would result in increasingly vigilant regulation of conferences and reduced freight rates, then industries that exported a large percentage of their output, or for which freight rates represented a large fraction of total costs, would especially benefit. In a regression of an index of industries weighted according to their net export position, the coefficient on

²⁸ The stock prices are from *Barron's*. We correct the returns for stock dividends and splits.

²⁹ We are following the precedent of Mullin, Mullin and Mullin (1995), who analyze the effects of events in the U.S. Steel dissolution suit on consumers of steel products.

³⁰ Standard and Poor's Trade and Securities, *Security Price Index Record*.

events interpreted as increasing the probability of separation would have a positive sign. Again, for the events that also communicated information about the administration of subsidies, results could differ. Industries that are net exporters would be harmed by less liberal disbursements of subsidies, so the coefficients for those events would be smaller than for the earlier events, and the sign would be negative if the informational content of the event was almost exclusively about subsidies. That is, because net exporting industries would be harmed by a reduction of subsidies (higher freight rates), the events communicating such a likelihood would decrease their stock returns, in contrast to the expected effect of more stringent regulation (lower freight rates).

We model firm (index) stock returns as a function of market returns, the events, a constant term and idiosyncratic error, as shown in the following equation.

$$R_{it} = \alpha + \beta R_{mt} + \sum_k \gamma_k D_{kt} + u_{it} \quad (1)$$

R_{it} denotes the stock return in period t for either firm i or portfolio i , R_{mt} is the market return in period t , D_k are dummy variables taking the value one on the week including event k , and u is an error term with zero mean and finite variance. The inclusion of the market return, R_{mt} , will allow us to isolate the fluctuations caused specifically by the event. We employ Standard and Poor's Railroads Index as our market index. This is an attractive choice because the railroads index will pick up the economy-wide fluctuations that also affect ocean carriers and exporting companies, but there is no obvious relationship between it and the events in question. Another option is to use the Standard and Poor's Composite Index of 500 industrial, utility and railroad stocks. Although a

broad index also subject to economy-wide movements that we wish to account for, the Composite Index is not attractive in our regressions on net exporting industries, because our industries are sufficiently numerous so as to comprise a non negligible proportion of the index.³¹ In addition, we apply the Newey-West methodology to estimate the standard errors that allows for autocorrelation. After calculating the Ljung-Box Q statistic for autocorrelation we allow up to a maximum of ten lags.³² Our sample covers the 105 week period from July 1960 to July 1962.

Results.

We estimated regression equation (1) using four alternative indexes of ocean carriers' stock returns as the dependent variable. In the first, firms receive equal weights. In the next, firms are weighted based upon the construction subsidies that they received as a percent of total capital employed, and in the third the percent of net profits from routes where the government subsidized their operations. The subsidy figures are presented in Table 3. The fourth index is calculated by weighting both construction subsidies and the percent of net profits from routes with subsidized operations.

The results, shown in Table 4, indicate that the first two events, Celler1 and Celler2, had the strongest impact, judged by both the size of the coefficients and the consistent statistical significance regardless of the specification of the dependent variable. Both indicate that investors anticipated negative consequences for ocean carriers due to the proposed bureaucratic reorganization, and that they viewed such reorganization as likely.

³¹ Nonetheless, we conducted estimations using the Composite Index, with results that are substantially consistent with those using the Railroads Index. Those results are available upon request.

³² See Hayashi (2000).

The coefficients for the remaining events all have the expected sign, supporting the hypothesis that the separation of regulatory powers was perceived as detrimental to ocean carriers, but are smaller and less significant. This is consistent with the view that the marginal value of the information contained in those events was lower than the first two, and that little updating of the subjective probabilities of reorganization or its ramifications took place. Of the last four events, the one corresponding to the date when the Senate effectively approved the plan was the most statistically significant. The results for the final event, Commerce, are mixed. When the indices emphasizing construction subsidies were employed as dependent variables, the event has the expected sign (positive) and is strongly significant. However, for the other indices the sign is negative.

The results for the individual firms are presented in Table 5. Again, the most consistent results are for the first two events corresponding with Chairman Celler's pronouncements for reorganization and the reports of White House support for separation. The coefficients for each carrier have the expected sign, although American Export Lines is not significant in either case. The results for the remaining events are less instructive. For the events Kennedy, House, and Senate, carriers have conflicting signs, although those with coefficients significant at the one percent level are all consistent with the separation hypothesis. However, carriers have significant coefficients with conflicting signs for the final event. Moore McCormack Lines' significant positive coefficient is causing the second and fourth indexes in Table 4 to be significant, due to that firm's very high level of construction subsidies. We attempted to discern a pattern in the different firm's coefficients based upon firms' dependence on either construction or operating subsidies, but such a consistent ranking only exists for the sixth event. In that

event, the firms receiving the most construction subsidies were more positively affected. From the events 3-6, there is only weak evidence supporting the hypothesis that those events were principally conveying information about the administration of either construction or operating subsidies.³³ The results in Table 5, taken as a whole, support the conclusion that the first two events were the most important that conveyed information with similar consequences for all firms, and that investors viewed the prospect of regulatory separation as harmful to ocean carriers.

The regression results of net exporting industries are displayed in Table 6. In column one, the dependent variable is an equally weighted index of all the industries' stock returns, where net exporting industries are assigned a positive sign and net importing industries are assigned a negative sign. The index best permits us to avoid the possibility that the coefficients are determined by idiosyncratic (industry-specific) shocks that are not related to the shipping industry. In the remaining columns, we present alternative indexes of industries in which the industries are weighted by: industry net exports as a percentage of total industry output, freight rates as a percent of the value of their products and both net exports and freight rates.³⁴

For Celler1 and Celler2, the coefficients are significant and positive in each specification. This supports the hypothesis that investors believed that the reorganization

³³ There is no obvious way to aggregate the construction and operating subsidy data. If we were able to rank the firms based upon overall dependence on both subsidies, a pattern could conceivably emerge.

³⁴ The source for the foreign trade data is the U.S. Department of Commerce, Foreign Commerce and Navigation of the United States, 1946-1963. The output data are from the U.S. Census of Manufactures, 1963, Volume 1. We use output and trade data for 1963, the available data closest to our sample. In calculating net exports for each industry, we omitted all trade between the United States and Canada for these products, the preponderance of which travels by land. Trade, output and freight data were matched using codes and product descriptions in the primary sources. The freight rate data are from the U.S. Bureau of the Census, 1994. It is reasonable to assume that the relative importance of freight costs for these industries was similar during the period of our study, because the ratio is closely related to products' physical characteristics. We thank David Hummels for providing us with these data. See Hummels (2001) for more details on the data.

would result in changes in regulatory policy resulting in lower freight rates. The significant coefficients for the remaining events are consistent with the hypothesis that those events conveyed information signaling an increase in freight rates. These findings are consistent with the view presented by the press and stated by observers, that early events principally conveyed information about stricter regulatory policy from the likely separation of agencies, and that the later events were more concerned with the execution of subsidy policy – specifically, the controversy over the role of the Secretary of Commerce. The first two events may have conveyed information suggesting lower freight rates, suggesting that the anticipated effect was primarily being driven by more stringent regulation. In contrast, the subsequent events conveyed information mostly in regards to the disbursement of subsidies – decreased subsidies and higher freight rates for the events Kennedy, House and Senate, and increased subsidies and decreased freight rates for the last event.

Conclusions.

The econometric evidence strongly supports the hypothesis that the separation of bureaucratic responsibilities regarding regulation and subsidies decreased stock returns of ocean carriers, and provides weaker support for the hypothesis that the regulatory separation benefited U.S. exports by resulting in lower freight rates. The results indicate that the organization of bureaucratic agencies has important implications for the carrying out of their statutory missions. Further, they provide specific evidence supporting the position advanced by Laffont and Martimort, that the separation of powers in regulation alleviates the threat of regulatory capture.

Although Laffont and Martimort's paper is the only carefully developed formal theory directly related to the issue we examine, other theoretical and empirical studies are also relevant.³⁵ Particularly appropriate for our case is the statement by Neven, Nuttall and Seabright (1993) that in the European Community, sector-specific bureaucracies have historically been charged with promotional responsibilities, and regulation has been a smaller part of their functions. They assert that these agencies have "been widely perceived as captured by the industries they were responsible for," and that mixing the functions "makes it harder for political authorities to monitor whether the agencies are doing their job."³⁶ Our study provides econometric evidence supporting precisely such a claim.

While our study shows that the separation of powers reduces the potential of capture, the motivation for Congressional and Presidential action, and the previous design and inaction, is unclear. It may have been that the political principals' preferences for strict regulation were constant, but that Congress and the President were slow to realize that the regulatory performance of the Federal Maritime Board was lax. An alternative to this informational view is that the Board's principals were fully cognizant of the Board's performance and approved of it.³⁷ Only a change in the principals or their preferences sealed the move for tighter regulatory control. While either the preferences of principals or their difficulty in monitoring agents might explain the functioning of the bureaucracy,

³⁵ See Laffont and Martimort for an extensive review of the literature.

³⁶ Neven, Nuttall and Seabright (1993), p. 185-87.

³⁷ There has been much research in political science on whether and how legislatures design bureaucracies and administrative procedures to promote specific policy orientations. In this literature, the preferences of the political principals are not necessarily viewed as synchronous with the maximization of social welfare. Fiorina (1982), Lupia and McCubbins (1994), McCubbins (1985), McCubbins, Noll and Weingast (1987, 1999), Weingast and Moran (1983).

this paper provides support for the view that the institutional structure of bureaucracy is an important variable determining regulatory performance.

Table 1. Events.

Name	Event	Expected Sign
Celler1	Chairman of House Judiciary Committee speaks out in favor of regulatory separation (March 8, 9, 12 1961).	-
Celler2	Celler releases letter to President Kennedy (March 30 1961).	-
Kennedy	President Kennedy submits plan to Congress (June 12 1961).	-
House	Plan overcomes hurdles in the House of Representatives (July 18, 20 1961).	-
Senate	Plan overcomes hurdles in the Senate (August 10 1961) and becomes law (August 12 1961).	-
Commerce	Secretary of Commerce briefing on plan (August 14 1961).	+

Table 2. List of Industries.

Aluminum
Automobiles
Beverages – Brewers
Beverages – Distillers
Beverages – Soft Drinks
Building Materials – Cement
Chemicals
Confectionery
Containers – Metal and Glass
Containers – Paper
Cosmetics
Drugs
Electrical Equipment
Electrical Household Appliances
Food – Dairy Products
Food – Meat Packing
Home Furnishings
Machine Tool Builders
Agricultural Machinery
Machinery – Specialty
Metal Fabricating
Office and Business Equipment
Paper
Railroad Equipment
Shoes
Soap
Steel
Textiles – Apparel
Textile Products
Textile – Synthetic Fibers
Tires and Rubber Goods
Tobacco – Cigarette Manufacturers
Vegetable Oils

Table 3. Ocean carriers' subsidies.

Firm	Net construction subsidies as a percent of capital employed	Percent of net profits from subsidized operations
U.S. Lines	-5.8	22.3
Moore-McCormack Lines	55.4	8.5
American Export Lines	39.0	10.6
Lykes Bros. Steamship Co.	23.1	13.4

Notes: Net construction subsidies figures are for the years 1953-1960, from U.S. House Subcomm. on Antitrust (1962), pp. 351-52. Capital employed is for 1958, from U.S. House Subcomm. on Antitrust (1960), p. 705. Percent of net profits from subsidized operations are for 1949-1959, from U.S. House Subcomm. on Antitrust (1962), p. 356. Net construction subsidies may be negative for this period, as in the case of U.S. Lines, because it was required to refund monies on vessels for which it previously received subsidies but later resold.

Table 4. Shipping industry. Weighted indices.

Name	(1)	(2)	(3)	(4)
Celler1	-0.029* (8.15)	-0.018* (4.78)	-0.034* (9.67)	-0.018* (4.62)
Celler2	-0.015* (3.45)	-0.022* (5.29)	-0.012* (2.72)	-0.021* (4.87)
Kennedy	-0.004 (0.75)	-0.007 (1.40)	-0.002 (0.39)	-0.010 (1.76)
House	-0.008 (1.38)	-0.003 (0.63)	-0.011 (1.77)	-0.001 (0.17)
Senate	-0.009* (2.79)	-0.008 (2.10)	-0.009* (2.84)	-0.011* (2.80)
Commerce	-0.003 (0.61)	0.021* (3.30)	-0.014 (2.40)	0.019* (3.00)

Notes: N = 105

t-statistics in parentheses in absolute values.

*= significant at less than the 1% level.

The indexes include four companies: U.S.Lines, Moore-McCormack, American Export Lines and Lykes Bros. Steamship Co. The indexes are weighted as follows

- (1) Simple average
- (2) Weighted by construction subsidies as percent of capital employed
- (3) Weighted by percent of net profits from subsidized operations
- (4) Weighted by construction subsidies as percent of capital employed and percent of net profits from subsidized operations

Table 5. Individual carriers.

Name	US Lines	Moore McCormack	AEL	Lykes Bros. Steamship Co.
Celler1	-0.046* (12.97)	-0.020* (5.44)	-0.001 (0.12)	-0.050* (12.39)
Celler2	-0.005 (1.05)	-0.036* (9.81)	-0.003 (0.37)	-0.017* (3.34)
Kennedy	0.008 (1.07)	0.006 (1.23)	-0.023* (2.14)	-0.008 (1.15)
House	-0.022* (3.22)	-0.015* (3.42)	0.014 (1.40)	-0.008 (1.29)
Senate	-0.003 (0.87)	0.010 (2.07)	-0.028* (6.05)	-0.016* (4.20)
Commerce	-0.037* (5.42)	0.049* (5.65)	-0.003 (0.35)	-0.022* (3.23)

Notes: N = 105

t-statistics in parentheses in absolute values.

* = significant at less than the 1% level.

Table 6. Industry indexes.

Name	Index 1	Index 2	Index 3	Index 4
Celler1	0.038* (12.17)	0.059* (13.70)	0.041* (9.61)	0.468* (17.52)
Celler2	0.013* (3.22)	0.015* (2.75)	0.037* (6.71)	0.144* (4.31)
Kennedy	0.007 (1.28)	-0.000 (0.07)	-0.016 (2.24)	-0.004 (0.10)
House	-0.012 (2.22)	-0.033* (4.49)	-0.028* (3.88)	-0.355* (7.69)
Senate	-0.007* (2.81)	-0.025* (7.18)	-0.031* (8.59)	-0.261* (9.38)
Commerce	0.014* (3.85)	0.021* (3.93)	0.030* (4.97)	0.602* (10.59)

Notes: N = 105

t-statistics in parentheses in absolute values.

* = significant at less than the 1% level.

(1) Index is a simple average, assigning a positive sign to exporters and a negative sign to importers.

(2) Industries are weighted by net exports.

(3) Industries are weighted by freight, assigning a positive sign to exporters and a negative sign to importers.

(4) Industries are weighted by net exports and freight.

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