

## Gains from Corporate Headquarters Relocations: Evidence from the Stock Market\*

CHINMOY GHOSH,<sup>†</sup> MAURICIO RODRIGUEZ,<sup>‡</sup> AND C. F. SIRMANS<sup>†</sup>

<sup>†</sup>*University of Connecticut, School of Business Administration, Department of Finance,  
368 Fairfield Road, Storrs, Connecticut 06269-2041; and* <sup>‡</sup>*Texas Christian University,  
M. J. Neeley School of Business, P.O. Box 32868, Fort Worth, Texas 76129*

Received September 29, 1993; revised June 27, 1994

This paper provides empirical evidence on investors' perceptions of the relative advantages and costs of spatial agglomeration. Specifically, we examine the stock price effects of headquarters relocations. The stock market reaction is significantly positive when relocation decisions are attributed to cost savings, indicating that cost savings available at less centralized locations outweigh any loss of enhancements associated with spatial clustering at urban centers. In contrast, decisions prompted by managerial self-interest and desire for luxurious offices elicit an adverse reaction from investors. © 1995 Academic Press, Inc.

The purpose of this paper is to study the stock price reaction to corporate headquarters relocations. Corporate headquarters relocations are decisions in which managers must weigh the benefits against the diseconomies associated with spatial clustering. For companies with traded common stock, the stock price movement in response to headquarters relocations announcements provides an opportunity to study investors' perceptions of the relative advantages and costs of spatial agglomeration. Mills [26] suggested that cities form because there are scale economies in industrial production that encourage firms and workers to cluster in large agglomerations. Agglomeration economies refer to the advantages of spatial concentration that result from the scale of an entire urban area, instead of the scale of a specific firm (Mills and Hamilton [27]). Henderson [16] explained how a greater scale of economic activities in cities enhances productivity through communications among firms, economies of scale in the labor market, increased opportunities for specialization of firm or worker activities, and scale economies in a common infrastructure.

\*This paper is extracted from Chapter 3 of Rodriguez's dissertation completed at the University of Connecticut. We gratefully acknowledge valuable comments from Jan Brueckner, two anonymous referees, Keith Johnson, Thomas Miceli, Christopher Barry, and participants at seminars at the University of Connecticut, Texas Christian University, Florida International University, and the Financial Management Association meetings, October 1993.

The clustering of large numbers of workers and firms working together in close spatial proximity, however, tends to be associated with certain externalities of agglomeration such as increased commuting costs, pollution, crime, and social conflicts. Henderson [16] observed that as cities grow, the diseconomies may offset the advantages of clustering, limiting the equilibrium size of cities.<sup>1</sup> Contributing to the trade-off, rapid technological advances over the past several decades have made enhancements previously available through spatial agglomeration accessible from more remote sites outside the major urban centers. In essence, the firm enjoys lower-cost space without sacrificing all the benefits of urbanization. As a result, the incentive to centrally locate is diminished. Under this scenario, agglomeration theory predicts a positive effect on stock prices in response to headquarters relocations attributable to cost savings.

However, corporate relocations are often prompted by managers' desire for a new building or to accommodate the special interests of top management. Relocations for no apparent reason other than to satisfy managerial self-interest are less justifiable from an investment point of view. Such moves typify the agency conflict between shareholders and managers, such that stockholder wealth may be adversely affected. Overall, the trade-off between the benefits of agglomeration provided by the spatial clustering of economic activity, the negative externalities of major urban centers, and the potentially positive impact of technological improvements is an empirical issue.

Our data indicate that the most frequent reasons for headquarters relocations are cost savings and consolidation of operations. A move motivated by overall cost cutting considerations is justified and enhances shareholder wealth if cost savings exceed relocation expenses and any loss of benefits of agglomeration. Consistent with this notion, we find a significantly positive stock market reaction when managers attribute the move to cost cutting efforts. This implies that cost savings available at less centralized locations outweigh any loss of enhancements associated with spatial clustering in urban centers. Apparently, investors perceive these projects as capital investments and can distinguish between good and poor projects. In contrast, stock prices fall significantly when companies move their headquarters to a luxurious building or the relocation is undertaken to facilitate special interests of top management. The market's disapproval

<sup>1</sup> Henderson [15] discussed optimal city size and size variations between cities. Arnott [2] developed the theory of optimal city size, and considers the relationship between economic aggregates in the city. Imai [18] provided a model where the optimal solution shows a centralized location occupied by both workers and firms. Tauchen and Witte [36] illustrated two models regarding the location of office activities within a city, neither of which provide for socially optimal equilibrium solutions. The nature of scale economies is a controversial issue in the literature. Henderson [16] provided a comprehensive review of this literature.

suggests that these decisions are perceived as a waste of corporate resources.

The paper proceeds as follows. In the next section, we describe the sample. In section 2, we discuss the motives for relocations and develop the hypotheses. In section 3, analyses of the stock market reaction to corporate relocation decisions are presented. We also explore the association between the stated motives of individual relocation decisions and the abnormal returns. Section 4 concludes the paper.

## 1. THE DATA

Headquarters relocation announcements provide an opportunity to examine investors' perceptions of the relative advantages and costs of spatial agglomeration. We used several sources to identify a sample of firms that announce relocations of corporate headquarters over the years 1966–1992. These include the *Dow Jones News Retrieval Service (DJNRS)*, the *Standard and Poor's Daily News Report (S & P-DNR)*, *The Washington Post (WP)*, *The Los Angeles Times (LAT)*, *The New York Times (NYT)*, and *The Wall Street Journal (WSJ)*. We searched these sources under the key words "headquarters," "relocation," and "moving." The search yielded 235 announcements of headquarters relocations. For multiple announcements relating to one relocation, we used the earliest date. Of the 235 cases, 59 announcements were eliminated because of confounding events during the 3-day window (announcement day, the day before, and the day after) surrounding the announcement.<sup>2</sup> Of the 176 unconfounded announcements, sufficient data were available for 160 cases in the data tapes from the Center for Research on Securities Prices (CRSP) from the University of Chicago.

Table 1 displays the distribution of the 160 unconfounded announcements by year, industry, and geographic region. The headquarters relocations are not clustered in time or industry. Nine cases come from the 1960s, the 1970s account for 44 cases, the 1980s provide 91 cases, and the 1990s account for 16 cases. The manufacturing sector accounts for 90 relocations, followed by the transportation, communications, and utilities sectors with 19 moves, mining and construction with 15, and finance, real estate, insurance, and other service sectors with 14 cases each. Firms in the

<sup>2</sup> To identify confounding events, we follow Ryngaert's [32] study on stock price effects of poison pill adoptions. Ryngaert's procedure includes the following announcements as being confounding: earnings and dividend forecasts/changes, stock splits and repurchases, court decisions, acquisitions amounting to more than 2% of a firm's market value, contracts and asset sales of greater than 1% of sales, self-tender offers, recapitalization, restructuring, spin-offs, and new holdings by third party investors. In addition, we also treat name changes and reductions in staff as confounding events. However, if the asset sales or staff reduction are directly related to the relocation, we do not exclude those cases.

TABLE 1  
Distribution by Year, Industry, and Region of the 160 Relocation Announcements During the Years 1966-1992.

(A) Distribution by year		(B) Distribution by industry		(C) Distribution by region <sup>d</sup>				
Years <sup>a</sup>	Number of announcements	Industries	Number of announcements	Regions	Moved from	Moved to	Moved within <sup>f</sup>	Gain/(loss) <sup>f</sup>
1966-1969	9	Mining, construction	15	Northeast <sup>c</sup>	29	55	18	26
1970-1975	19	Manufacturing <sup>b</sup>	90	South	15	38	12	23
1976-1979	25	Transportation, communications, electric, gas and sanitary services	19	North central	20	19	9	(1)
1980-1985	36	Wholesale and retail	8	West	20	29	15	9
1986-1989	55	Finance, insurance and real estate	14	New York City	64	10	7	(54)
1990-1992	16	Services <sup>c</sup>	14	Unknown	12	9	3	(3)

<sup>a</sup> The year represents the first time the relocation announcement appeared in at least one of the following sources; the *Dow Jones News Retrieval Service*, *The Standard Poor's Daily News Report*, *The Washington Post*, *the Los Angeles Times*, *The New York Times*, and *The Wall Street Journal*. This is not necessarily the same year the relocation took place.

<sup>b</sup> Food and kindred products; tobacco products; textile mill products; apparel and other finished products made from fabrics and similar materials; lumber and wood products, except furniture and fixtures; paper and allied products; printing, publishing, and allied industries; chemicals and allied products; petroleum refining and related industries. Rubber and miscellaneous plastic products; leather and leather products; stone, clay, glass, and concrete products; primary metal industries; fabricated metal products, except machinery and transportation equipment; industrial and commercial machinery and computer equipment; electronic and other electrical equipment and components, except computer equipment; transportation equipment; measuring, analyzing, and controlling instruments; photographic, medical and optical goods; watches and clocks; miscellaneous manufacturing industries.

<sup>c</sup> Hotels, rooming houses, camps, and other lodging places; personal services; business services; automotive repair, services and parking; miscellaneous repair services; motion pictures, amusement and recreation services; legal services; educational services; social services; museums, art galleries, and botanical and zoological gardens; membership organizations; engineering, accounting, research, management, and related services; private households; miscellaneous services.

<sup>d</sup> The definition of the four major regions follows, "Regions and Geographic Divisions of the U.S." from the U.S. Department of Commerce, Bureau of the Census.

<sup>e</sup> Northeast region excludes New York City.

<sup>f</sup> This is calculated as (moved to minus moved from).

manufacturing industry show a wide variation in their two digit SIC code. As panel (C) demonstrates, New York City and the northeast region (excluding New York City) lost a combined total of 93 corporate headquarters over the years under study. New York City lost 64 companies—17 between 1970 and 1975, 9 between 1976 and 1979, 10 between 1980 and 1985, 15 between 1986 and 1989, and 7 in the first 3 years of the 1990s. Thirty-two of these companies moved to other northeastern states, a large number relocating to New Jersey and the adjacent Fairfield County, CT; apparently, these companies still preferred to be close to New York City without having to contend with the high costs associated with the centralized location. Southern states gained 10 companies from New York, the north central region gained 6 companies, and the western region gained 5. Only 10 companies relocated their headquarters to New York City. Interestingly, the northeast region gained the largest number of relocations.

## 2. MOTIVES FOR HEADQUARTERS RELOCATION AND DEVELOPMENT OF HYPOTHESIS

To identify the motives for headquarters relocations, we read each announcement in the sample and categorized the reasons for the relocation stated therein.<sup>3</sup> The reasons fall into the following broad categories: cost savings and consolidation of operations (potential trade-offs between benefits and costs associated with spatial agglomeration), managerial preference and the desire for a new headquarters building (potential agency conflict), and an increase/decrease in the need for space (growth/decline in business).<sup>4</sup> Table 2 displays the distribution of the sample in terms of stated motives.

In 132 cases, either a single reason was stated or no reason for the move could be identified. In the remaining 28 announcements, multiple reasons were given. Sixty-nine announcements attributed the relocation to potential cost savings; 46 of these cases cited lower cost as the only reason behind the move. Forty-two relocations were classified as being prompted by management's self-interest and/or desire for a luxurious building; in 23 of these cases, the announcement did not identify any other motivation for the move. Eighteen cases (12 exclusively) attributed the relocation to an

<sup>3</sup> The categorization of announcements based on their information content is similar in spirit to McConnell and Muscarella's [25] study of capital investment announcements. Although the reasons stated in the announcements may not always be the true underlying motive behind the relocations, they represent the best available proxy.

<sup>4</sup> In a survey of companies relocating headquarters, Louis Harris and Associates [14] found that the factors most frequently considered by executives include ample and functional space, a more favorable image, lower occupancy costs, better quality of life, and proximity to markets, customers and clients. A better tax and regulatory climate and availability of well trained professionals were among the least cited reasons.

TABLE 2  
Distribution of 160 Corporate Headquarters Relocation Announcements by  
Stated Motive during the Years 1966–1992.

Stated motive <sup>a</sup>	Exclusive <sup>b</sup>	Non-exclusive <sup>c</sup>
Cost	46	69
Agency	23	42
Business growth	12	18
Business decline	4	7
Sale	5	12
No reason	42	42
Total	132	190

*Note.* Motives were identified by reading the *Dow Jones News Retrieval Service*, *The Standard and Poor's Daily News Report*, *The Washington Post*, *The Los Angeles Times*, *The New York Times*, and *The Wall Street Journal*.

<sup>a</sup> The cost savings category includes announcements that cited cost reasons for relocating from highly centralized locations. The cost savings included the following (the number of cases in parentheses): lower taxes (8), reduced rents, utilities and transportation expenses (12), overall cost reduction resulting from consolidation of operations (18), proximity to customers and suppliers (24), and general cost savings (7). The agency category includes announcements where the relocations were prompted by managers' self-interest. This category includes relocations to a new luxurious building (12), and other reasons (30) including CEO's preference for location, desire for separate office, and entrenchment. Business growth includes announcements where the decision to move was associated with a growth in business necessitating additional space. Declining business includes announcements where the decision to move was associated with a decline in business reducing space requirements. Sale represents the cases where the old headquarters building was sold. The "no-reason" category includes announcements that did not cite any reason for the move.

<sup>b</sup> These categories include cases where the announcements state only one motive for the relocation.

<sup>c</sup> These categories include cases where the announcements state more than one motive for the relocation. The sum of these cases is greater than 160 since several announcements cite more than one reason.

increased need for space due to business growth; 7 (4 exclusively) relocations were precipitated by a reduced need for space because of a decline in business. Finally, 12 (5 exclusively) relocations were accompanied by the sale of the existing headquarters building.<sup>5</sup> We could not identify any reasons, stated or otherwise, for headquarters relocations in 42 cases.

<sup>5</sup> These 12 announcements were categorized separately because, although the headquarters sale was not a motive, previous research suggests that real estate sales elicit a positive market reaction (Glascock *et al.* [12]).

### *A. Cost-Motivated Relocations*

Among the 69 relocations attributed to cost savings, 34 cases represented moves out of New York City. The remaining moves consisted of companies moving from other relatively highly centralized locations. Thirty-nine relocations occurred between 1986 and 1992 (19 from New York City), 21 during the 1970s, and 7 in the early 1980s. The reported sources of cost saving included lower taxes (8 cases), reduced rents, utilities, and transportation expenses (12 cases), overall cost reduction resulting from consolidation of operations (18 cases), proximity to customers and suppliers (24 cases), and “general” cost savings (7 cases). For instance, Exxon Corp. moved from New York City to a Dallas suburb to take advantage of the depressed real estate market (*WSJ* 10/27/89). The potential tax savings include special tax incentives, savings for specific industries, lower state taxes, and lower local income and property taxes. Adams Express Co. said that it decided to move out of New York City to Baltimore, MD to take advantage of a projected reduction in taxes (*WSJ* 3/31/76). Moving the headquarters closer to the work force, according to some managers, results in efficiency gains through consolidation of operations, a shorter commute, and higher employee morale. Signal Co. announced plans to move its corporate headquarters from Los Angeles to San Diego so that employees would have more time to devote to business and the community rather than wasting hours commuting on freeways (*WSJ* 10/25/78). Establishing headquarters in the vicinity of important clients’ offices makes servicing efforts easier. For example, Beverly Enterprises, Inc. announced plans to move its headquarters to Fort Smith, AK, a town of about 76,000 people, to be “closer to more of its nursing homes and reduce operating costs and employee living costs” (*WSJ* 03/09/90). The general cost savings category includes Inspiration Resources’ relocation from New York City to Sioux City, IA to achieve overall cost-minimization (*WSJ* 3/7/91) and General Cable Corporation’s move from New York to Greenwich, CT to improve “internal communication and the effectiveness of the management team” (*WSJ*, 4/2/73).

The benefits of agglomeration stem from enhancements of greater economic activities. For example, Jacobs [19, 20] argued that person-to-person interactions in cities help people get ideas and innovate. She explained that important knowledge transfers often come from communications between different industries. Porter [31] argued that knowledge spillovers in specialized, spatially concentrated industries stimulate growth. Glaeser *et al.* [11] stated that “intellectual breakthroughs must cross hallways and streets more easily than oceans and continents.”<sup>6</sup>

<sup>6</sup> These authors report evidence consistent with Jacob’s hypothesis that important knowledge spillovers occur between, rather than within, industries.

The technological advances over the past couple of decades, however, have made the enhancements previously available through spatial agglomeration accessible from less centralized locations.<sup>7</sup> Echoing this transition, *The Wall Street Journal* (3/8/94) reported that businesses were moving large parts of their operations from downtown office buildings to relatively rural areas and that “technological advances, such as computer links between manufacturing plants, suppliers and distributors, have given corporations freedom to move out of traditional business centers.”

In essence, technological advancements have reduced the comparative benefits from spatial agglomeration, but have had little impact on the negative externalities associated with spatial clustering. Computer modems, fax machines, and other technological advances have done little to reduce commuting costs, pollution, and crime in central locations. We therefore expect announcements of headquarters relocations that are attributed to expected cost savings from relocating out of highly centralized locations to elicit a positive stock-market reaction. In finance parlance, for these decisions, the market expects the present value of potential savings to exceed the costs of relocating to new headquarters facilities (McConnell and Muscarella [25]). However, a negative stock-market reaction to the announcement may result if the potential cost savings of relocations from major urban centers are outweighed by any loss of enhancements from agglomeration economies.

#### *B. Agency-Motivated Relocations*

The 42 relocations prompted by managers' self-interested behavior include 19 moves out of New York City. Fourteen of these 42 moves took place during the years 1986–1992 (6 from New York City), 16 moves occurred during the 1970s, and 8 occurred during the early 1980s. Overall, there are two general groups of reasons discernible in these decisions. The first group includes announcements that cite expansion into luxurious offices. The second group includes a variety of reasons; however, managerial self-interest, directly or implicitly, appears to motivate all these decisions. In the first group, which includes 12 cases, the company moved into a new luxurious office building. These announcements highlighted the unique attributes of the new building—its size, architectural features, and high cost and time to build—rather than any contribution the move made to the overall efficiency and performance of the firm. For example, AT&T planned to move to a “lavish new thirty five story structure with a six-story lobby, at a cost of \$200 million” (*WSJ* 5/18/83). Managements' desire for a luxurious office dominates these decisions. The more common reasons in

<sup>7</sup> Danger [9] points out that in this age of phone and fax, some types of businesses can move just about anywhere, and businesses will move where people want to live.



the second group were CEOs' preference for the location of the headquarters, desire for a separate building, and entrenchment. TWA decided to move into a three-building complex owned by a company controlled by its Chairman, Carl C. Icahn (*DJNRS* 6/25/87). Two companies moved their headquarters close to the CEO's residence, and two other companies moved close to a golf course and country club. General Dynamics decided to move from New York City to St. Louis, where the newly appointed President resided (*WSJ* 2/11/71). In several instances, the majority of headquarters staff continued at the old office while the top echelon moved to a separate, newly constructed, well appointed building.<sup>8</sup> When the Chairman of Kimberly-Clark relocated his office, the move affected fewer than 50 corporate jobs and very few of the headquarters staff (*WSJ* 11/12/84). No other reasons were given for these decisions. Finally, two companies moved their headquarters to a different state to protect entrenched managers from hostile takeovers. Singer's move from Stamford, CT to New Jersey was characterized as a takeover defense (*WSJ* 8/20/87).

Managers' self-interested behavior underlying the acquisition of a luxurious headquarters building or a relocation prompted by considerations of personal gains, convenience, and protection conflicts with maximization of shareholder wealth. These cases substantiate Jensen and Meckling's [24] thesis that separation of ownership of the firm's common stock and management of the firm induces managers to use the firm's assets to further their own interests because shareholders bear the cost.<sup>9</sup> Using the firm's resources to acquire a well appointed office building, with no apparent benefit to corporate performance, lends support to Jensen's [21] free cash flow hypothesis that entrenched managers tend to waste cash

<sup>8</sup> In cases such as these, the companies' headquarters officially moved since the headquarters is defined as the location where the top managers are. However, most of the staff often remained at the previous location and did not benefit from the same perquisites that top managers enjoyed.

<sup>9</sup> Jensen and Meckling [24] argued that, in the modern form of publicly held corporations, separation of ownership and control provides managers the opportunity to act in their own self-interest. Specifically, managers tend to expend corporate resources and free cash flow (Jensen [21]) on excess perquisites and negative net present value projects at the expense of shareholder wealth. Free cash flow is defined as cash available at managers' discretion after all positive net present value investments. As Jensen [22, 23] observed, for a company to operate efficiently and maximize value, free cash flow must be distributed to shareholders rather than retained. However, this does not always happen; senior managers have few incentives to distribute the funds, and there exist few mechanisms to compel distribution. As such, agency problems can never be perfectly resolved and managers do not always act in the best interests of shareholders. The resulting loss in value is the lost wealth of the shareholders due to divergent behavior of the managers.

reserves on excessive perquisites and negative net present value projects.<sup>10</sup> If the dissipation of corporate resources more than offsets the cost savings resulting from relocations from an urban center, shareholder wealth may be adversely affected.

### *C. Relocations with No Stated Motives*

Forty-two announcements stated no reason for the headquarters relocation. The market response to these decisions is difficult to predict *a priori*. A *Wall Street Journal* (6/20/91) article noted that the market often reacts negatively to relocation announcements where managers state no reason for the decision. The article characterized the phenomenon as “the knee-jerk bad news” reaction to a corporate move. In several of these announcements, the future destination of the headquarters was not reported.

### *D. Increases and Decreases in Space Needs*

Several companies attributed the decision to move their headquarters to a growth in business necessitating additional space. Crazy Eddie Inc. decided to relocate its headquarters from Brooklyn, NY to Edison, NJ because it needed additional space (*WSJ* 1/12/86). Headquarters relocations could also be prompted by a declining business. For example, Telco Systems Inc.’s headquarters move coincided with discontinuation of several product lines (*S & P-DNR* 10/15/86). We hypothesize that relocations attributed to need for additional (less) space signal growth prospects (declining business) and convey positive (negative) information regarding a firm’s future performance.

### *E. Relocations from New York City*

As the largest city in the United States, New York City may offer differential agglomeration economies relative to other cities. For the companies relocating out of New York City, the distribution of motives is similar to the total sample. For these 64 relocations, 34 (21 exclusively) cited cost savings available from moving to a less centralized location—primarily commuting, tax, and real estate expenses—as a motive, and 19 relocations (8 exclusively) were motivated by managerial self-interest. Fifteen announcements identified no reasons for the move. While leaving

<sup>10</sup> We could not determine the source of financing for the new headquarter from the announcements. In 2 of the 12 cases where the company relocated to a luxurious edifice, it sold the existing headquarter. If the company contracts to make monthly or annual payments through a lease or with monies raised through a bank loan or a security issue, it commits corporate funds, at various points in time, which could otherwise be distributed to shareholders. We contend that if the company’s move to a grand headquarter building entails commitment of additional funds currently or in the future with no apparent benefit, it is a potential waste of free cash.

New York City may result in commuting and other cost savings, these may be offset by the loss of agglomeration benefits such as a large, well trained labor market and the proximity to the financial service industry. We test whether companies moving out of New York City for only cost savings reasons experience a different market reaction than firms moving out of other cities for the same reasons. Moves from New York City prompted by agency conflicts should elicit a negative market response.

### 3. METHODOLOGY AND RESULTS

The null hypothesis is that the potential cost savings from headquarters relocations are counterbalanced by losses associated with the lack of enhancements from agglomeration economies, so that the stock price impact of relocation announcements is not significantly different from zero. To measure the price impact, the average daily and cumulative abnormal returns from 60 trading days before through 30 trading days subsequent to the first announcement are examined using the standard event-study technique. The abnormal returns are calculated as actual return minus estimated return based on the market model. The estimation period for the market model spans days  $-180$  through  $-61$ . The Dodd and Warner [10] procedure was used to calculate the  $z$ -statistics. We also calculated a generalized rank statistic to test whether the median abnormal return is significantly different from zero.<sup>11</sup> We used the newspaper (*WSJ*, *WP*, *NYT*, or *LAT*) announcement day as day 0; since *DJNRS* and *S & P-DNR* usually report the event the day before it is published in the *Wall Street Journal* or other media, announcement dates from these sources are marked day  $-1$ .

The average cumulative abnormal returns (CARs), the average daily abnormal returns, the associated  $z$ -statistics, and the number of companies with negative and positive abnormal returns are presented in Table 3. The results are reported for portfolios of the complete exclusive and non-exclusive samples, and three subsamples of firms announcing headquarters relocations motivated by (a) only cost savings, (b) only managerial preferences, and (c) no stated reasons.<sup>12</sup>

<sup>11</sup> For a review of event-study methodology, see Brown and Warner [5], Patell [29], and Peterson [30]. Corrado [7] and Cowan [8] developed non-parametric techniques for tests of significance. We used Corrado's technique to calculate the generalized rank statistic for daily abnormal returns. For cumulative abnormal returns, we followed Cowan's generalization of Corrado's technique.

<sup>12</sup> The "exclusive" sample includes announcements that stated only one reason for the relocation; the "non-exclusive" sample includes cases in which the announcements stated more than one reason.

TABLE 3

Daily and Cumulative Abnormal Returns in Percent for Various Subsamples and Intervals around the *Wall Street Journal* Announcement Day (denoted day 0) or *Dow Jones News Retrieval Service/The Standard and Poor's Daily News Report* Announcement Day (day - 1) for Relocations of Corporate Headquarters during the Period 1966-1992.

Interval	Total sample Non-exclusive (n = 160)		Exclusive (n = 132)		Only cost savings (n = 46)		Only agency (n = 23)		No reason (n = 42)	
	CAR	z-statistic	CAR	z-statistic	CAR	z-statistic	CAR	z-statistic	CAR	z-statistic
-1	-.12	-.54 (94:66)	-.12	-.28 (79:53)	.79	1.70 <sup>f</sup> (20:26) <sup>c</sup>	-1.28	-3.33 <sup>d</sup> (20:3) <sup>a</sup>	-.76	-1.75 <sup>f</sup> (30:12) <sup>b</sup>
0	-.11	-.34 (87:73)	-.04	.19 (69:63)	.40	1.81 <sup>f</sup> (20:26)	-.18	-1.19 (16:7) <sup>b</sup>	-.57	-1.16 (25:17)
+1	.05	-.21 (84:76)	.17	.20 (69:63)	.06	.58 (24:22)	.17	-.39 (9:14)	.33	.85 (26:16)
-1, 0	-.23	-.62 (92:68)	-.16	-.07 (78:54)	1.19	2.49 <sup>e</sup> (17:29) <sup>b</sup>	-1.46	-3.20 <sup>d</sup> (21:2) <sup>a</sup>	-1.33	-2.05 <sup>e</sup> (30:12) <sup>a</sup>
-1, +1	-.18	-.63 (98:62)	.01	.06 (80:52)	1.26	2.36 <sup>e</sup> (19:27) <sup>c</sup>	-1.29	-2.84 <sup>d</sup> (18:5) <sup>a</sup>	-1.00	-1.19 (32:10) <sup>b</sup>
-2, +2	-.03	-.15 (87:73)	.04	.21 (70:62)	1.39	2.13 <sup>e</sup> (19:27) <sup>b</sup>	-1.03	-2.00 <sup>e</sup> (14:9) <sup>c</sup>	-1.02	-.86 (28:14)
-5, +5	-.80	-1.75 <sup>f</sup> (93:67)	-.55	-1.06 (76:56)	1.11	.83 (20:26)	-.08	-.76 (13:10)	-2.36	-1.78 <sup>f</sup> (29:13) <sup>b</sup>
-60, -2	1.47	1.58 (75:85)	.11	.43 (65:67)	2.43	1.34 (19:27)	1.68	.63 (9:14)	.96	.63 (19:23)
+1, +30	.17	-.42 (86:74)	.66	-.17 (73:59)	2.98	1.23 (22:24)	.12	-.63 (11:12)	-.84	-.44 (23:19)

Note. The abnormal returns are generated by a market model estimated with 120 days of daily returns beginning 180 days before the announcement day. The S & P500 index is used as a proxy for the market. The z-statistics are calculated following Dodd and Warner (1983). The number of negative and positive returns is shown below the z-statistic in parentheses (-, +).

<sup>a</sup> Generalized rank statistic is significant at 1% level.

<sup>b</sup> Generalized rank statistic is significant at 5% level.

<sup>c</sup> Generalized rank statistic is significant at 10% level.

<sup>d</sup> z-statistic is significant at 1% level for two-tailed test.

<sup>e</sup> z-statistic is significant at 5% level for two-tailed test.

<sup>f</sup> z-statistic is significant at 10% level for two-tailed test.

### A. Total Sample Results

For the total sample of 160 cases, the average daily abnormal returns are insignificant for days -1, 0, and +1. Ninety-four firms show negative abnormal returns on day -1; the corresponding numbers for days 0 and +1 are 87 and 84, respectively. The generalized rank statistic is not significant for any of these days. The average cumulative abnormal returns show a similar pattern. The CARs for the two-day (-1, 0) and three-day (-1, +1) windows are insignificant. Ninety-two firms suffer negative abnormal returns over the interval (-1, 0); for the interval (-1, +1) 98 firms lose value. The CARs are insignificant for all intervals surrounding the announcement date except for days (-5 to +5), when the sample of firms

experiences significantly negative abnormal returns. The generalized rank statistic is not significant for any interval. The results are essentially the same for the sample of 132 relocations in which the announcements report only one motive for the decision or the announcements do not cite a reason. These results are reported in the “exclusive sample” column of Table 3.

### *B. Cost-Motivated Relocations*

For the 46 relocations identified as being motivated by cost savings only, the daily abnormal returns are significantly positive on days  $-1$  and  $0$ ; the CARs are significantly positive for the interval  $(-1, 0)$  and other reported intervals. The generalized rank statistic is significant for day  $-1$ , the interval  $(-1, 0)$ , and other reported intervals. Twenty-nine of the 46 firms experience positive abnormal returns over the two day  $(-1, 0)$  interval. This indicates the market’s approval of managers’ cost-cutting efforts and that the market perceives potential cost savings to more than outweigh any losses of benefits from agglomeration economies. Viewed in a capital investment framework, the results suggest that investors assess the relocation to be a positive net present value project.<sup>13, 14</sup>

We also examine the price reaction for the sample of all relocations (69 cases) where cost savings was among the reasons identified as a motive. In contrast with the findings for the 46 relocations motivated by cost considerations alone, none of the daily or cumulative abnormal returns are significant for the expanded sample.<sup>15</sup> Clearly, the negative impact of the other reasons—15 of the 23 multiple motive cases fall under the agency category—offsets the positive effect of cost cutting. This is shown in

<sup>13</sup> These results are generally consistent with those of Chan *et al.* [6] and Alli *et al.* [1]. Similar market response to capital investments were reported by Blackwell *et al.* [3] for plant closings, Statman and Sepe [35] for project terminations, and Brickley and Van Drunen [4] for shutting of units. Other studies on stock-market reaction to capital investment decisions include Gombola and Tsetsekos [13] on plant closings, Hite *et al.* [17] on spin-off of real estate operations, Owers and Rogers [28] on sell-off of real estate assets, Glascock *et al.* [12] on sell-off of real estate assets, and Slovin *et al.* [33] on sale-and-leasebacks. Overall, these studies are consistent with the notion that investors generally endorse positive net present value projects.

<sup>14</sup> It may be argued that since technological improvements (e.g., personal computers, fax machines) have been widely available at affordable prices from the middle to late 1980s, cost motivated headquarters relocations during this latter period should elicit a stronger positive stock price reaction than for relocations during the earlier years. Although it is difficult to control for all potentially important variables at various points in time, we segregated the sample of cost-motivated headquarters relocations to test this hypothesis. We find support for this argument for subsamples separated in time around the late eighties.

<sup>15</sup> These results, not reported in Table 3, are available from the authors.

Model I in Table 4, which is a cross-sectional regression for 61 announcements where all non-exclusive announcements are agency related. The intercept, representing the announcements that only cite cost savings as the reason for the move, is positive and statistically significant. The coefficient for the agency dummy variable is negative and statistically significant.

### C. *Agency-Motivated Relocations*

Table 3 shows that the 23 announcements that exclusively discussed agency-related reasons experienced a significantly negative market response. The daily abnormal returns are significantly negative for day  $-1$ ; the CARs are significantly negative for interval  $(-1, 0)$  and other reported intervals. The generalized rank statistic is significant for days  $-1$  and  $0$ , the interval  $(-1, 0)$ , and other reported intervals. Note that 21 of these 23 firms experience negative abnormal returns over the two-day  $(-1, 0)$  interval. These results are consistent with the hypothesis that the use of corporate resources for consumption of perquisites reduces shareholder wealth.

The total sample of relocations motivated by managerial self-interest (42 cases) includes 23 exclusive and 19 non-exclusive announcements. The daily abnormal returns are significantly negative on days  $-1$  and  $0$ , and the cumulative abnormal returns are significantly negative over the interval  $(-1, 0)$  and other intervals of interest.<sup>16</sup> The impact of the other reasons—15 of the 19 multiple motive cases cited cost cutting—fail to mitigate investors' aversion to waste of corporate resources. The evidence suggests that when agency conflicts influence the decision making process, investors tend to discount managers' claims of any positive aspects of the decision. This is illustrated in Model II of Table 4, which gives cross-sectional regression results for the 42 agency announcements. The dependent variable is  $CAR(-1, 0)$  and the independent variable is a dummy variable that equals one if any non-agency motives are cited in the announcement and zero otherwise. The intercept, representing the announcements that only cited agency related motivations for the move, is negative and statistically significant. Given that 15 of the multiple cases cited cost savings, we expect the non-exclusive agency effect to be less negative than the exclusive agency effect.<sup>17</sup> The coefficient for the dummy variable

<sup>16</sup> These results, not reported in Table 3, are available from the authors.

<sup>17</sup> The CAR over the interval  $(-1, 0)$  is  $-.641$  ( $z = -1.52$ ) for the non-exclusive agency announcements.

TABLE 4  
Heteroskedasticity-Corrected Parameter Estimates for the Linear Regression Models.

	Independent variables		
	Intercept	Dummy variable	F-statistic
Model I <sup>a</sup> (N = 61)	Cost savings	Agency	
Coefficient	1.222	-1.781	
t-statistic	(2.538) <sup>f</sup>	(-2.323) <sup>f</sup>	
Model II <sup>b</sup> (N = 42)	Agency	Non-exclusive	
Coefficient	-1.460	.819	3.752 <sup>f</sup>
t-statistic	(-2.302) <sup>f</sup>	(1.014)	
Model IIIA <sup>c</sup> (N = 65)	No reason	Agency	
Coefficient	-1.337	-.128	7.923 <sup>e</sup>
t-statistic	(-3.353) <sup>e</sup>	(-.170)	
Model IIIB (N = 88)	No reason	Cost savings	
Coefficient	-1.333	2.525	
t-statistic	(-3.353) <sup>e</sup>	(4.063) <sup>e</sup>	
Model IV <sup>d</sup> (N = 46)	Not from New York	From New York	
Coefficient	.925	.584	
t-statistic	(1.497)	(.599)	

Note. The estimated coefficients for the variables are presented along with the corresponding *t*-statistics in parentheses. The independent variables are identified from announcements in the following news media: the *Dow Jones News Retrieval Service*, *The Standard and Poor's Daily News Report*, *The Washington Post*, *Los Angeles Times*, *The New York Times*, and *The Wall Street Journal*.

<sup>a</sup> The dependent variable in Model I is  $CAR(-1, 0)$ , and the independent variable is a dummy variable equals one if the other reason is agency-related and zero otherwise. The intercept represents announcements that only cited cost savings as the reason for the move.

<sup>b</sup> Model II was calculated for the sample of all relocations motivated by managerial self-interest, among other reasons. We estimate a cross-sectional model as follows: The dependent variable is  $CAR(-1, 0)$  and the independent variable is a dummy variable that equals 1 if the announcement is not exclusive and zero otherwise. The intercept represents announcements that only cited agency-related motivations for the move.

<sup>c</sup> Model IIIA was calculated for the sample of relocations motivated only by managerial self-interest, and those that did not cite any reason. We estimate a cross-sectional model as follows: The dependent variable is  $CAR(-1, 0)$  and the independent variable is a dummy variable that equals one if the motive to relocate was agency-related and zero otherwise. The intercept represents announcements that did not cite any reason for the move. Model IIIB is a cross-sectional regression using firms that did not state any reason for relocating and firms that only cited cost savings as the reason for the move. The dependent variable is  $CAR(-1, 0)$  and the independent variable is a dummy variable that equals one if the cited reason for the move was cost savings and zero otherwise. The intercept represents the announcements that did not cite any reason for the move.

<sup>d</sup> Model IV was calculated for the sample of all relocations that only cited cost as the reason for the move. We estimate a cross-sectional model as follows: The dependent variable is  $CAR(-1, 0)$  and the independent variable is a dummy variable that equals 1 if the move is from New York City and zero otherwise. The intercept represents moves from a city other than New York City.

<sup>e</sup> Significant at 1% level.

<sup>f</sup> Significant at 5% level.

<sup>g</sup> Significant at 10% level.

indicates that the non-exclusive agency effect is less negative, but not significantly different from the exclusive agency effect.<sup>18</sup>

#### *D. Relocations with No Stated Reasons*

The parametric and non-parametric results show the market's reaction to 42 headquarters relocations with no stated reason is significantly negative for day  $-1$ , interval  $(-1, 0)$ , and other reported intervals. Thirty of the 42 firms experience negative abnormal returns over the two-day  $(-1, 0)$  interval. Apparently, when managers choose not to identify any reason for a relocation, the market perceives the silence as an attempt to minimize attention to potential waste of corporate resources.

Do the agency-motivated moves experience a greater impact than the no-reason moves? The two-day  $(-1, 0)$  CAR for the announcements that only cited agency-related motives is  $-1.46$  percent ( $z = -3.20$ ), while the CAR for the announcements that did not cite any reason is  $-1.33$  percent ( $z = -2.05$ ). A cross-sectional regression using the pooled 65 announcements is shown in Model IIIA in Table 4. The dependent variable is  $CAR(-1, 0)$  and the independent variable is a dummy variable that equals one if the motive to relocate is agency related and zero otherwise. The intercept, representing the announcements that did not cite any reason for the move, is negative and statistically significant. While the agency effect is more negative, it is not significantly different from the "no-reason" base case.

Are the abnormal returns experienced by firms that did not state any reason for relocating significantly different from that experienced by firms that only cited cost savings? The two-day  $(-1, 0)$  CAR for the announcements that only cited a cost savings reason for the move is  $1.19$  percent ( $z = 2.49$ ), while the CAR for the announcements that did not cite any

<sup>18</sup> Finance theory (Jensen [21]) suggests that agency conflicts are severe in firms with excessive free cash flow. Accordingly, stock price declines attributable to agency conflicts should be positively related to firms' free cash flow. This is particularly the case for firms with limited growth opportunities. Tobin's  $Q$  has frequently been used as a proxy for growth opportunities. We used Smith and Kim's [34] measure to proxy for growth opportunities. As suggested by one of the referees, we regressed abnormal returns against free cash flow at the end of the year prior to the relocation announcement. The free cash flow variable has the expected sign, but is not significant. When we segmented the sample in terms of growth opportunities, the results remained unchanged. We attribute this result to several factors. First, the decision to relocate to an expensive headquarter may not always entail a large cash outflow immediately, but a fixed commitment in the future. As such, the decision may elicit a negative stock price reaction reflecting investors' disapproval of excess managerial consumption of perquisites, although the firm may have little free cash flow. Second, our sample of agency motives includes other situations with no apparent wastage of current free cash flow. Relocating to avert a takeover is an example. A regression of abnormal returns against managerial ownership also yielded insignificant results.



reason is  $-1.33$  percent ( $z = -2.05$ ). A cross-sectional regression using the pooled 88 announcements is shown in Model IIIB in Table 4. The dependent variable is  $CAR(-1,0)$  and the independent variable is a dummy variable that equals one if the cited reason for the move is cost savings and zero otherwise. The intercept, representing the announcements that did not cite any reason for the move, is negative and statistically significant. The coefficient for the cost variable is positive and significantly different from the no-reason base case.

#### *E. Growth Signals in Relocations*

For the subsample of 12 relocations that only cited an additional need for space as the reason for the move, both the parametric and non-parametric statistics showed that these firms experienced a significantly positive market reaction [ $CAR(-1,0) = 1.38\%$ ,  $z = 2.37$ ]. Four announcements cited no reason other than a decline in business or a decrease in space needs as the reason for the relocating. The results for this latter subsample show a significantly negative response [ $CAR(-1,0) = -4.63\%$ ,  $z = -2.23$ ].<sup>19</sup> These results support McConnell and Muscarella's [25] conclusion that unanticipated increases (decreases) in capital investment projects signal increasing (decreasing) growth prospects.

#### *F. Relocations from New York City*

As we expected, the results for the subsample of companies moving from New York City are similar to those of the overall sample. For the total sample of 64 relocations out of New York City, the average daily and cumulative abnormal returns are not significant. Twenty-one of these companies attributed the decision to potential cost savings alone. The average daily abnormal returns for these 21 companies is significant on day 0, and the cumulative abnormal returns over interval  $(-1,0)$  is  $1.51\%$ , ( $z = 2.34$ ). The eight moves prompted by no apparent reason other than managerial self-interest experience a significant negative CAR over the interval  $(-1,0)$ .<sup>20</sup>

Do firms that move out of New York City for cost savings experience different abnormal returns relative to firms that move from another city? Model IV in Table 4 displays the cross-sectional results for the 46 announcements that only cited cost as the reason for the move where the dependent variable is  $CAR(-1,0)$  and the independent variable is a dummy variable that equals 1 if the move is from New York City and zero

<sup>19</sup> The small sample size precludes further interpretation for the subsamples in this section.

<sup>20</sup> When we examine all the moves from New York City where managerial preference is a factor (19), the average cumulative abnormal returns are significantly negative on days  $(-1,0)$  and the daily abnormal returns are significantly negative on day  $-1$ .

otherwise. The intercept representing the base case of announcements from a city other than New York is positive and significant. While the coefficient for the dummy variable is positive, indicating firms moving from New York City for cost reasons gain more, the effect is statistically insignificant. These results indicate that any relatively higher cost savings available to firms moving out of New York City are offset by losses in beneficial economies from agglomeration.<sup>21</sup>

#### *G. Cross-Sectional Analysis of Total Non-exclusive Sample*

Since some announcements gave multiple reasons for a given move and we reject the hypothesis of no abnormal returns for subsamples of headquarters relocations based on single reasons, we test the hypotheses further after controlling for simultaneity of positive and negative effects using the total sample of 160 relocation announcements. We estimate the following cross-sectional regression model:<sup>22</sup>

$$\begin{aligned} \text{CAR} = & \beta_0 + \beta_1 \text{AGENCY} + \beta_2 \text{COST} + \beta_3 \text{BUSGROWTH} \\ & + \beta_4 \text{BUSDECLINE} + \beta_5 \text{SALE} + \epsilon. \end{aligned} \quad (1)$$

CAR is the cumulative abnormal return over days  $(-1, 0)$ . All the explanatory variables are dummy variables, and the base case ( $\beta_0$ ) is the “no-reason” sample. AGENCY equals one if managerial self-interest motivated the relocation. We expect  $\beta_1$  to be negative as agency costs reduce stockholder wealth. COST equals one if cost minimization is a stated motive for the headquarters move. We expect  $\beta_2$  to be positive if investors perceived the cost savings to more than offset the cost of relocation. BUSGROWTH equals one when the headquarters moved to acquire more space to facilitate growth.  $\beta_3$  should be positive since the need for space may signal growth prospects for the firm. BUSDECLINE equals one if the announcement implied a decline in business or a decrease in space needs as the reason for relocating. We expect  $\beta_4$  to be negative due to negative signaling implications. SALE equals one if the company sold the current headquarters building. Glascock *et al.* [12] reported that firms selling real

<sup>21</sup> We do not suggest that technological advancements have made all benefits of spatial agglomeration accessible from distant points. Locational economies of scale arising from greater industry size in a given area may continue to exist and urbanization economies of scale may still provide some benefits for firms in different industries.

<sup>22</sup> We also included dummy variables to capture the interaction between the multiple reasons. Since the results for the interaction variables are economically meaningless, they are not reported.

estate assets experience a significantly positive market reaction; therefore we expect  $\beta_5$  to be positive.<sup>23</sup>

The heteroskedasticity-corrected parameter estimates are

$$\begin{aligned} \text{CAR}(-1, 0) = & -1.332 - 0.120\text{AGENCY} + 2.523\text{COST} \\ & (-3.343) \quad (-0.164) \quad (4.089) \\ & + 2.727\text{BUSGROWTH} - 3.364\text{BUSDECLINE} + 4.333\text{SALE} \\ & (2.996) \quad (-1.430) \quad (1.650) \quad (2) \end{aligned}$$

The model is significant at the 1% level, ( $F_{13,147} = 2.714$ ), and  $t$ -statistics are presented in parenthesis. All variables have the predicted signs, and two are significant at the 1% level. Consistent with earlier results, COST is significantly positive while AGENCY is not significantly different from the no-reason base case.

#### 4. CONCLUSIONS

Equilibrium city size is determined by the offsetting benefits of agglomeration including communication among firms, economies of scale in the labor market and in infrastructure, and the diseconomies of spatial clustering which include increased commuting costs, pollution, and crime. Corporate headquarters relocations are decisions where managers must weigh the advantages against the disadvantages associated with spatial agglomeration. We used capital market data to examine stock price movements around headquarters relocation announcements. The stock price movements in response to these announcements reveal investors' perceptions of the relative economies and diseconomies of spatial clustering.

Our results indicate that the market response to relocation announcements motivated by cost savings is significantly positive. This is consistent with the notion that technological advances have made the benefits associated with agglomeration economies available to firms at less centralized locations. However, relocation decisions motivated by managerial self-interest experience significantly negative abnormal returns, which suggests that investors are averse to self-interested behavior on the part of managers.

<sup>23</sup> A subsample of five relocation announcements that only stated the sale of the old headquarter without any reason for the move produced a significant positive market reaction on day  $-1$ . This supports prior findings by Glascock *et al.* [12].

#### REFERENCES

1. K. L. Alli, G. G. Ramirez and K. Yung, Corporate headquarters relocation: Evidence from the capital markets, *American Real Estate Urban Economics Association Journal*, 19(4), 583-599 (1991).

2. R. Arnott, Optimal city size in a spatial economy, *Journal of Urban Economics*, **6**, 65–89 (1979).
3. D. Blackwell, D. W. Marr, and M. Spivey, Plant-closing decisions and the market value of the firm, *Journal of Financial Economics*, **26**, 277–288 (1990).
4. J. A. Brickley and L. D. Van Drunen, Internal corporate restructuring: An empirical analysis, *Journal of Accounting and Economics*, **12**, 251–280 (1990).
5. S. J. Brown and J. B. Warner, Using daily stock returns: The case of event studies, *Journal of Financial Economics*, **14**, 3–32 (1985).
6. S. H. Chan, G. W. Gau and K. Wang, “Stock-Market Reaction to Capital Investment Decisions: Unifying Evidence from Business Relocations,” Univ. of Texas, Working Paper (1992).
7. C. Corrado, A non-parametric test for abnormal security price performance in event studies, *Journal of Financial Economics*, **23**, 385–396 (1989).
8. A. R. Cowan, “Nonparametric Event Study Tests,” Iowa State Univ., Working Paper (1992).
9. J. S. Danger, Pulling up stakes, *SKY*, **8**, 100–105 (1993).
10. P. Dodd and J. Warner, On corporate governance: A study of proxy contests, *Journal of Financial Economics*, **11**, 401–438 (1983).
11. E. L. Glaeser, H. D. Kallal, J. A. Scheinkman, and A. Shleifer, Growth in cities, *Journal of Political Economy*, **100**, 1126–1152 (1992).
12. J. L. Glascock, W. N. Davidson and C. F. Sirmans, The gains from corporate selloffs: The case of real estate assets, *American Real Estate Urban Economics Association Journal*, **19**, 4, 567–582 (1991).
13. M. J. Gombola and G. P. Tsetsekos, The information content of plant closing announcements: Evidence from financial profiles and the stock price reaction, *Financial Management*, **21**, 31–40 (1992).
14. L. Harris and Associates, Inc., “Report on Corporate Relocations,” Louis Harris and Associates, Inc., New York (1987).
15. J. V. Henderson, The sizes and types of cities, *American Economic Review*, **64**, 640–656 (1974).
16. J. V. Henderson, “Urban Development: Theory, Fact, and Illusion,” Oxford Univ. Press, New York (1988).
17. G. L. Hite, J. E. Owers and R. C. Rogers, The separation of real estate operations by spin-off, *American Real Estate Urban Economics Association Journal*, **12**(3), 318–332 (1984).
18. H. Imai, CBD hypothesis and economies of agglomeration, *Journal of Economic Theory*, **28**, 275–299 (1982).
19. J. Jacobs, “Cities and Wealth of Nations: Principles of Economic Life,” Random House, New York (1984).
20. J. Jacobs, “The Economy of Cities,” Random House, New York (1969).
21. M. C. Jensen, Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review*, **76**, 323–329 (1986).
22. M. C. Jensen, Eclipse of the public corporation, *Harvard Business Review*, **89**, 61–74 (1989).
23. M. C. Jensen, Corporate control and the politics of finance, *Journal of Applied Corporate Finance*, **4**, 13–33 (1989).
24. M. C. Jensen and W. H. Meckling, Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics*, **3**, 305–360 (1976).
25. J. McConnell and C. Muscarella, Corporate capital expenditures decisions and the value of the firm, *Journal of Financial Economics*, **14**, 399–422 (1985).
26. E. S. Mills, An aggregative model of resource allocation in a metropolitan area, *American Economic Review*, **57**, 197–210 (1967).

27. E. S. Mills and B. W. Hamilton, "Urban Economics," Scott, Foresman, and Co., Boston (1989).
28. J. E. Owers and R. C. Rogers, The divestiture of real estate assets by sell-off, *Real Estate Issues*, **11**, 29–35 (1986).
29. J. Patell, Corporate forecasts of earnings per share and stock behavior: Empirical tests, *Journal of Accounting Research*, **14**, 246–276 (1976).
30. P. P. Peterson, Event studies: A review of issues and methodology, *Quarterly Journal of Business Economics*, **28**, 36–66 (1989).
31. M. E. Porter, "The Competitive Advantage of Nations," Free Press, New York (1990).
32. M. Ryngaert, Effects of poison pill securities on shareholder wealth, *Journal of Financial Economics*, **28**, 377–418 (1988).
33. M. B. Slovin, M. E. Sushka, and J. A. Poloncheck, Corporate sale-and-leaseback and shareholder wealth, *Journal of Finance*, **45**, 289–299 (1990).
34. R. L. Smith and J. Kim, The combined effects of free cash flow and financial slack on bidder and target stock returns, *Journal of Business*, **67**, 281–310 (1994).
35. M. Statman and J. F. Sepe, Project termination announcements and the market value of the firm, *Financial Management*, **18**, 74–81 (1989).
36. H. Tauchen and A. D. Witte, Socially optimal and equilibrium distributions of office activity: Models and exogenous and endogenous contacts, *Journal of Urban Economics*, **15**, 66–86 (1984).