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A MULTIVARIATE ANALYSIS OF INITIAL ACQUISITION ANNOUNCEMENTS

Georgia Institute of Technology PH.D. 1984

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A MULTIVARIATE ANALYSIS OF INITIAL ACQUISITION ANNOUNCEMENTS

A THESIS

Presented to

the Faculty of the Division of Graduate Studies

By

Yen-Sheng Huang

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy in the College of Management

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A MULTIVARIATE ANALYSIS OF

INITIAL ACQUISITION ANNOUNCEMENTS

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ABSTRACT

The objective of this dissertation is to examine the impact of initial acquisition announcements on the wealth of target shareholders through both univariate and multivariate analysis. Specifically, this study investigates the wealth impact associated with the disclosure of: (1) target management's reaction, (2) payment method, (3) type of acquisition, (4) terms of the offer, and (5) bidder's identity.

Sample firms are collected through direct inspection of the front page of The Wall Street Journal (WSJ) over the period from April 1977 through September 1982. This sampling period and method avoids the time prior to the enactment of the Williams Act and also largely reduces the ex-post selection bias. In addition, sample firms with confounding day 1 (day 0 is the day WSJ reports the acquisition offer) announcements are excluded from the final sample. Acquisition information is obtained from the relevant articles in the WSJ. Abnormal returns are computed using the standard cumulative abnormal return methodology. Emphasis is placed on analysis of the announcement period.

Results using the multivariate analysis (i.e., controlling for other important factors) are somewhat different from that reported in previous research. Abnormal returns are higher for tender offers than for mergers using univariate analysis. This pattern remains the same when abnormal returns are examined across subgroups with different managerial reaction. However,

when the effect of payment method is isolated, (cash) mergers involve higher abnormal returns than (cash) tender offers.

Using the multivariate analysis, managerial resistance is associated with abnormal returns significantly higher than favorable managerial reaction. This evidence is consistent with the shareholder welfare hypothesis.

Cash mergers are associated with much higher abnormal returns than stock mergers. The evidence is consistent with the interpretation that stock transactions involve more favorable tax treatment than cash offers. The tax hypothesis, however, does not seem to explain the large difference between the two types of payment methods.

The announcement of investment offers is associated with positive market reaction for both subsequently acquired and unacquired groups although the price behavior of the two groups differs over the post-announcement period.

CHAPTER I

INTRODUCTION

The impact of an acquisition offer on the security prices of participating firms has been of great interest to both researchers and practitioners. Past research on the wealth impact of an acquisition offer generally examines the price behavior over the period surrounding an acquisition announcement. In most cases, a financial press release reports several major aspects of an offer including the bidder's identity, terms, payment method, type of offer (e.g., merger or tender offer), and target management's reaction. Although the past several years have witnessed significant progress in both empirical and theoretical developments, most previous studies have omitted several interdependent factors in acquisition announcements. Measurement of any abnormal price behavior over the period surrounding an acquisition announcement would reflect the joint effect of all the signals released in an acquisition announcement.

Halpern[1983, p. 298] points out this issue in his recent review paper on acquisition studies:

> A merger or a tender offer provides a bundle of signals all of which generate information that is reflected in the security prices of the participants. These signals give information on the event itself, the identity of the acquiror, and the method of payment, among others....To disentangle the impact on the security prices of all of these signals and thereby evaluate the underlying motivation for the merger is very difficult.

The potential interdependence among different signals has several implications for acquisition research. Examination of the effect of one signal requires the control of the other signals. Failure to consider the interdependence among major factors may lead to biased results. Nevertheless, past studies have generally omitted several interdependent factors in acquisition announcements.

The objective of this dissertation is to examine the impact of an acquisition announcement on the wealth of target shareholders. The wealth impacts of several major factors in acquisition announcements are examined using multivariate analysis. Specifically, the present study investigates the wealth impact associated with: (1) target management's reaction, (2) payment method, (3) type of acquisition, (4) terms of the offer, and (5) bidder's identity.

The motivation behind managerial resistance to an acquisition offer has been a central issue in the acquisition literature. Whether target management resists an acquisition offer to fulfill its fiduciary duty or to maximize its own welfare remains unresolved.

The payment method has been found to have a significant impact on shareholder wealth. Most previous research, however, has been restricted to examining only completed acquisitions. Since an acquisition offer may be unsuccessful, the characteristics of completed acquisitions could differ from those of unsuccessful offers. A survey by Jensen and Ruback [1983] of

recent acquisition research indicates that around 30% of mergers and tender offers are unsuccessful. Consequently, the samples utilized in past research introducing what Jensen and Ruback term "ex-post selection bias" are unrepresentative of the population of all acquisition offers.

Mergers and tender offers have been the major types of acquisition in the corporate control market. Despite this importance, few studies have explicitly compared the market's reaction to these two types of acquisition. The few studies that examine this issue (e.g., the survey paper by Jensen and Ruback) have not explicitly addressed interdependent factors such as payment methods used in different types of acquisitions. If tender offers and mergers involve different payment methods, the observed abnormal returns between the two types of acquisition may depend in whole or part on the effect of payment method. In the present study, abnormal returns are examined between mergers and tender offers after controlling for payment method and other factors.

In addition, most previous research does not examine the market's reaction to investment offers and announcements not explicitly revealing type of acquisition (e.g., not disclosed as merger, tender offer or investment). This omission is important for two reasons. First, investments refer to transactions where the bidders seek to acquire a smaller percentage of target ownership. While certain investments may be purely for the purpose of gaining from potential price appreciation, others may

signal an acquisition. Second, to reduce selection bias, any study of acquisition announcements should include cases where only partial details are released. Initial announcements which do not disclose the type of acquisitions may still have substantial impact on the share prices of target firms and should be incorporated in acquisition studies.

The disclosure of both acquisition terms and bidder's identity also provides information to the market which should be reflected in security prices. Disclosure of such information may reduce the uncertainty of an acquisition offer and may (other things being equal) imply a greater price reaction than if such information is not disclosed.

Although the above issues are important individually, their impacts on stock prices are correlated. A more appropriate examination of these issues requires consideration of possible interdependence among various factors. One objective of this study is to extend previous literature by incorporating these omitted factors in a multivariate analysis. In addition, this dissertation investigates several issues not explicitly examined in previous literature. This includes consideration of "ex-post selection bias", what will be termed "day-one bias" and the analysis of announcement information not previously considered. This includes the impact of revealing the bidder's identity and terms of the offer. The wealth impact of the non-disclosure of various items is also considered for the first time (e.g., type of offer not disclosed or target management makes "no comment").

The present study uses a sample period from April 1977 through September 1982. This period avoids the confounding influence of a major regulatory change in the corporate control market -- the Williams Act enacted in 1968 and its Amendment in 1970.[1] The last year of the sample period represents the latest period with daily return data available from the CRSP tapes at the time this study was undertaken. This sample period also allows a large sample size over a relatively homogeneous time interval.

To reduce the ex-post selection bias mentioned earlier, the sample was obtained through direct inspection of acquisition announcements from the front page of each issue of The Wall Street Journal over the sample period. Next, The Wall Street Journal Index was consulted to ensure that the acquisitions had not been previously announced. Finally, the relevant acquisition information for each initial announcement was obtained from the actual article in The Wall Street Journal.

The abnormal returns associated with the initial announcements are measured by using the standard reidual analysis technique developed by Fama, Fisher, Jensen and Roll[1969]. Several alternative models and estimation periods are tested to examine the stability of the results. The market's reaction to

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[1] Jarrel and Bradley[1980] and Smiley[1975] report a significant increase in abnormal returns to target firms after the enactment of the Williams Act. Some previous studies have used sample periods covering the 1960's and 1970's and may introduce bias due to changes in the regulatory climate.

the various dimensions of acquisition announcements is also examined through two-way and multivariate analysis.

The presentation of this research is structured as follows. Chapter II reviews relevant literature relating to wealth impacts of (1) managerial reaction, (2) payment method, and (3) mergers and tender offers concluding with a summary of unresolved issues. Chapter III describes the issues to be examined in the present study. The procedure for collecting data and the methodology for examining the abnormal returns are also discussed. Chapter IV first examines the properties of the sample firms, and is followed by an analysis of the results. Chapter V summarizes this study, draws conclusions, and suggests future research.

CHAPTER II

LITERATURE REVIEW

An acquisition announcement typically involves information on several major factors : target management's attitude toward the offer (e.g., favorable, opposing, or undisclosed); form of payment negotiated in the offer (e.g., cash, stock, mixed, undisclosed); type of the acquisition (e.g., tender offer, merger, investment); terms of the offer, and identity of the bidder.

The purpose of this chapter is to review past literature most pertinent to the present study. This chapter does not cover general acquisition literature that has been reviewed extensively. For comprehensive reviews on the general literature, see Jensen and Ruback[1983], Halpern[1983], Copeland and Weston[1982], and Weston and Chung[1983].[1]

This chapter reviews past studies that examine the impact of the following factors on the security prices of target firms: (1) managerial reaction, (2) payment method, (3) the type of acquisition (merger, tender offer, etc...). The chapter concludes with a summary of unresolved issues that will be examined in the present research.

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[1] For a thorough survey of determinants of bid premiums in tender offers, see Walkling[1980].

Managerial Resistance

When incumbent management is the sole owner of a firm, a conflict of interest between shareholders and management does not exist. However, when management does not own the entire firm, management's interest may deviate from that of shareholders. Two sources of conflict are (1) management's excessive consumption of corporate resources at the expense of shareholders, and (2) resistance to an acquisition offer that benefits shareholders but may force the incumbent management to lose its position.

Managers have a fiduciary responsibility to make corporate decisions that maximize the welfare of shareholders, but they may also be motivated by self-interest. That is, they may consume excess perquisites. Such perquisite consumption, of course, can be reduced either through close monitoring of managerial behavior or by implementation of a compensation package that encourages better managerial performance. In the real world, however, neither monitoring processes nor compensation contracting is perfect and costless. Moreover, management may seek to maximize its own welfare rather than that of the shareholders when the interests of the two parties do not coincide. Jensen and Meckling[1976] develop a major treatise on this issue, commonly known as the agency theory.

The conflict of interest may be even more obvious when a firm faces an acquisition offer. A typical premium offer that provides target shareholders with the opportunity to realize significant price appreciation may nevertheless endanger the job

security of the target management. A recent survey (noted by Walkling and Long[1984]) indicates acquisition as a major reason for managers losing their jobs. Target management may resist an offer in order to preserve its own position (and any perquisite consumption) even though the takeover is preferred from the perspective of the shareholders.

Two frequently quoted hypotheses concerning managerial resistance to an acquisition offer are the shareholder welfare hypothesis and the managerial welfare hypothesis. (For related discussion on these hypotheses, see Walkling[1980], Walkling and Long[1984], Dodd and DeAngelo[1983], and Bradley and Wakeman[1983].) According to the shareholder welfare hypothesis, managerial resistance represents an action to maximize shareholder wealth by preventing a bidding firm from either "raiding" the target firm or paying an inadequate premium. This hypothesis asserts that target management fulfills its fiduciary responsibility in the face of an acquisition. The managerial welfare hypothesis argues that managerial resistance represents pursuit of self-interest by reducing the takeover threat and thereby securing corporate control rights and perquisite consumption opportunities for the incumbent management. When conflicts of interest between shareholders and management exist, the managerial welfare hypothesis suggests that managerial resistance does not maximize shareholder welfare.

Shareholder Welfare Hypothesis

The shareholder welfare hypothesis asserts that managerial

resistance to an acquisition offer is the action taken by incumbent management to prevent a bidding firm from exploiting the welfare of target shareholders. One implicit assumption of this hypothesis is that the competition in the market for corporate control is not adequate to force a bidding firm to offer an adequate bid premium; thus, managerial resistance to such an offer becomes crucial in order to protect the best interest of shareholders. In addition, this hypothesis assumes that the behavior of incumbent management is well disciplined by the managerial labor market (and/or by the internal monitoring activity) so that management's decision would not materially deviate from its fiduciary responsibility.

Overview. There are several ways by which a bidding firm may exploit a target firm. First, a bidding firm may undertake raiding strategies that hurt minority target shareholders after the bidder has successfully acquired the target firm. Several authors have investigated this issue. (See, for example, Grossman and Hart[1980], Bradley[1980], Halpern[1983].) Second, target management that resists an acquisition offer frequently describes the bid premium as inadequate relative to the true value of the target firm. Although this argument may seem to be inconsistent with the efficient market hypothesis[2],[3], casual observation indicates that the initial bid premium often is

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[2] See Fama[1976] for details on the efficient market hypothesis.

[3] See Easterbrook and Fischel[1981] for an elaboration of this argument.

substantially lower than the final offer.[4] Lastly, even though the bid premium is adequate relative to the true value of the target firm, the possibility exists that a higher price may be achieved when others compete in bidding. Baron[1983] develops a comprehensive framework that explicitly incorporates this possibility. The argument that a bidding firm may exploit a target firm and that target managerial resistance may represent a "good business decision" is reflected in court rulings on lawsuits concerning an acquisition. Easterbrook and Fichel[1981, p. 1163] indicate that courts typically uphold the managerial position in acquisition related lawsuits involving managerial resistance.

Resisting a Raider. One potential exploitation of a target firm by bidders is referred to as the raider argument. According to the raider argument, a bidding firm attempts to maximize its own welfare through exploiting a target firm. The exploitation may take the form of diluting the wealth of the minority shareholders following a successful takeover. Halpern[1983] notes that a bidder may overcharge its managerial service to the target firm upon gaining its control right or may purchase products from the target firm at a very low price.

The success or failure of a raiding strategy depends on whether target shareholders are protected by legislation prohibiting unfair treatment of minority shareholders.[5]

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[4] See Ruback[1982] for an examination of the Conoco case.

Alternatively, the competition in the market for corporate control may represent an "invisible hand" that precludes any significant underpricing of target shares involved in a takeover.

The protection afforded target shareholders may be limited. To the extent that legislation and the competition in the corporate control market are insufficient to safeguard the welfare of target shareholders, target management not only has the right, but also has the fiduciary responsibility, to resist an acquisition offer that it determines to be contrary to the firm's best interest. This is indeed the position held in most court rulings involving takeover controversies.

Resisting an Inadequate Premium. The second argument for managerial resistance asserts that the bidding price is inadequate compared to the true value of the target firm. This argument presumes that target management possesses certain inside information about the target firm's true value that is not available to general market participants, and thus, the target shares are underpriced. The undervaluation provides bidding firms the opportunity to acquire a target firm at a bargain price.[6]

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[5] See Jarrel and Bradley[1980] for an examination of the impact of the Williams Act in 1968 and its Amendment in 1970. These laws impose constraints on the ability of the bidding firm to launch a quick bidding strategy. See DeAngelo, DeAngelo and Rice[1982] for an investigation of the wealth impact on the minority shareholders involved in a going private situation.

[6] Bidding firms may have an advantage relative to general investors in knowing the true vlue of a target firm. This would be especially true for a horizontal or vertical merger. See, for example, Manne[1965].

The underpriced argument is also consistent with the internal efficiency hypothesis discussed by Manne[1965], Dodd and Ruback[1977], and Bradley[1980]. According to this hypothesis, an acquisition offer indicates an opportunity for improved efficiency on the part of the target management. However, if this opportunity is adequately communicated to the market through the signal of the takeover offer, the stock price of the target firm should adjust accordingly. The bidder would incur a cost equal to the adjusted new value of the target firm in order to acquire the target. Consequently, as noted by Halpern[1983], there is little incentive for a bidder to engage in such an acquisition. However, if the opportunity cannot be communicated to the market, the price of target shares would not fully impound the potentially higher efficiency. Bidders are motivated to undertake acquisitions at prices lower than the maximum obtainable value of the target firm. The premiums offered these shareholders would increase their wealth but would not necessarily maximize their welfare.[7]

Seeking Higher Bid Premiums. Finally, as noted in Baron[1983], target management may resist an acquisition to induce a higher bid premium even though the current bid is

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[7] The internal efficiency hypothesis assumes that an acquisition offer signals information to target management concerning the opportunity to improve efficiency internally. Alternatively, it may be argued that bidding firms are more efficient than the target firm. Competition in the bidding process still will raise the price of target shares to reflect new efficiency if more than one bidding firm is capable of improving the performance of the target firm.

adequate relative to the true value of the target firm.[8] Managerial resistance may force the current bidder to increase its bidding premium. If managerial resistance could strengthen the target firm's bargaining position, the bidder might be willing to raise the offer as long as the takeover still represents an attractive investment. Alternatively, managerial resistance may attract other bidders to join the bidding process since it slows the progress of a takeover and provides other potential bidders more time to enter the takeover battle. According to auction theory, competition in the bidding process will result in a final price high enough to exclude the second highest bidder from gaining a positive return.[9] Thus, managerial resistance has the potential effect of making target shareholders better off by raising the bid premium.[10]

Summary of Shareholder Welfare Hypothesis. In summary, the shareholder welfare hypothesis suggests that managerial resistance to an acquisition offer represents a fulfillment of its fiduciary responsibility. Managerial resistance may cause the failure of an inadequate offer and thus be consistent with shareholder welfare. Alternatively, resistance may induce a

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[8] However, a bidding firm's shareholders may accuse its management of alleged overpayment for acquisition of a target firm.

[9] See Ruback[1983] for an exmination of competition in the market for corporate control.

[10] This argument assumes that managerial resistance does not materially reduce the chance of success of a profitable takeover. Work by Walkling[1985] and Hoffmeister and Dyl[1981] casts doubt on the validity of this assumption.

higher bid premium through bargaining with the current bidder or attracting other bidders to join the bidding competition. Thus, this hypothesis predicts a positive price impact from managerial resistance to an acquisition offer.

Managerial Welfare Hypothesis

The managerial welfare hypothesis suggests that resistance to an acquisition offer reflects an act of self-interest aimed at preserving job security and perquisite consumption by reducing the probability of takeover. When conflicts of interest exist, management would seek to maximize its welfare at the expense of the shareholders' welfare.[11] This hypothesis predicts a negative price impact from managerial resistance to an acquisition offer.

There are several reasons for a possible reduction of shareholder wealth when management resists an acquisition offer.

Consumption of Corporate Resources. First, managerial resistance may involve consumption of corporate resources that could be very costly to shareholders. To defend an acquisition, management may hire investment bankers, lawyers, merger defense specialists, and so forth. As indicated by Dodd and

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[11] Strictly speaking, the shareholder welfare hypothesis and the managerial welfare hypothesis are not mutually exclusive. For example, managerial resistance may result in a higher bid premium that benefits both shareholders and management. In the literature, however, the managerial welfare hypothesis typically refers to those situations in which management maximizes its own welfare at the expense of shareholders. See for example, Dodd and DeAngelo[1983], and Bradley and Wakeman[1983].

DeAngelo[1983], the costs also include the loss of profit-generating opportunities because managerial efforts are directed toward the acquisition.

Reduction of Monitoring Force. Second, as Manne[1965] points out, the threat of takeover provides a strong protection to shareholders by monitoring the performance of management. However, managerial resistance may reduce the threat of takeover and thereby weaken the monitoring force. When management is not disciplined by the corporate control market, its performance may decline. Managers may have fewer incentives to improve efficiency and may attempt to expand their perquisite consumption. Easterbrook and Fischel[1981] point out that reduced external monitoring force would harm shareholders since it is difficult for most individual shareholders to discipline incumbent management.[12]

Loss of Bid Premium. An acquisition offer generally involves a substantial premium over the prevailing market price which provides target shareholders with the opportunity to realize significant gains. But managerial resistance may cause failure of the takeover attempt as documented by Hoffmeister and Dyl[1981] and Walkling[1985]. If managerial resistance excludes

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[12] Fama[1980] suggests that the competition in the managerial labor market provides a constraint on management's departure from its fiduciary responsibility. For example, management behavior may be guided by ex-post adjustment in managerial compensation. The extent to which management behavior is disciplined by the labor market remains an empirical question.

the shareholders from realizing a potentially significant gain, shareholders' welfare would be harmed. Managerial resistance may also discourage potential bidders from engaging in an acquisition offer if the bidders anticipate a lower chance of success.

Summary of Managerial Welfare Hypothesis. In summary, the managerial welfare hypothesis suggests that resistance to an acquisition offer indicates management's attempt to preserve its position in the firm. Managerial resistance may impose significant costs on shareholders when: (1) management directs corporate resources to resist a profitable takeover, (2) managerial efficiency is reduced due to less outside monitoring, and (3) shareholders lose the opportunity to realize gains from a premium offer.

Baron's Study--A Theoretical Framework

Whether managerial resistance to an acquisition is motivated by its self-interest or by its fiduciary responsibility to maximize shareholder welfare is subject to empirical evidence. Baron[1983] develops a theoretical framework to investigate this issue. Baron's analysis includes two types of managers. The first type of manager is one whose compensation depends entirely on the price of target shares so that management's interest coincides with that of shareholders. Management is assumed to possess certain information about the target firm's true value that is not generally known to market participants. Thus, managerial resistance indicates an inadequate premium relative to what management believes to be the true value of the target firm.

The second type of manager is one whose welfare consists of both an ownership in target shares and a preference for corporate control. The control right provides management with job security and perquisite consumption opportunities, which are assumed to command positive value to the management. This type of management may resist an acquisition not only because of an inadequate bid premium but also because of its concern about losing control rights in the target firm.

Baron analyzes the behavior of the two types of management facing an acquisition offer. Other things being the same, managers with a preference for corporate control would demand a higher bid premium than their counterparts in order to compensate for loss in corporate control rights. Alternatively, these managers would be more likely to resist an acquisition than their counterparts under the same bid premium.

Although market participants do not possess inside information about the true nature of a target's management at the beginning, managerial resistance signals information to the market. According to Baron, target management that frequently resists an acquisition offer may develop the reputation for having a preference for corporate control. Therefore, the market may interpret managerial resistance as motivated by self-interest rather than by its fiduciary responsibility.

In the following paragraphs, empirical evidence relating to managerial resistance is reviewed in more detail. The more general research on the motivation of managerial resistance is

covered first. Subsequent paragraphs focus on past work examining the wealth impacts of managerial resistance to target shareholders. The latter material is more pertinent to the present study.

General Empirical Evidence on Managerial Resistance

Bradley. Bradley[1980] examines whether a bidder could successfully employ a raiding scheme to exploit a target firm. He argues that, if a raider could dilute all target assets subsequent to a successful takeover, the target share price would fall to zero. Under this extreme situation, target shareholders would tender all of their shares in anticipation of a shrinkage of share value. Using a sample of 161 successful tender offers over the period 1962-77, Bradley observes that, contrary to expectations, the post-execution price of target shares exceeds the pre-announcement level by 36%. Since target shareholders do not tender all their shares and the post-execution price is actually higher than the pre-announcement level, Bradley rejects the hypothesis that bidding firms successfully undertake raiding strategies in takeover offers.

Halpern[1983] suggests an alternative explanation of Bradley's evidence. Since a raiding scheme does not require full dilution of target shares, an increase in post-execution price does not necessarily reject the notion of a successful raiding strategy that dilutes only part of target assets.

Bradley also examines the related issue of whether bidding firms acquire target shares at a bargain price. He reports that

the post-execution price is lower by 13% than the premium of 49% paid by bidding firms. The 13% loss is inconsistent with the notion that bidding firms are paying inadequate premiums to exploit target firms.[13]

Dodd and Ruback. Dodd and Ruback[1977] examine the internal efficiency hypothesis which asserts that an acquisition offer signals information to target management concerning the opportunity to improve corporate efficiency. According to this hypothesis, recognition of the opportunity for target management to improve its efficiency will increase the market value of the target firm. Since the efficiency can be improved by target management, the adjustment of the market price of target shares does not depend on the success of a potential takeover. If the hypothesis is vaild, the target price should adjust to reflect the new opportunity regardless of the outcome of the takeover offer. Observation of a permanent price adjustment, independent of the outcome of the takeover attempt, is consistent with the hypothesis. In contrast, a permanent price adjustment for successful offers, but not for unsuccessful offers, would reject the hypothesis.

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[13] Despite the 13% loss, bidding firms in Bradley's sample still realize a 5% abnormal return over the 40 trading days following the offer. Bradley interprets this gain as part of the synergistic benefit of acquisition, although the actual source of the synergy is not identified. Note that this result is also consistent with Halpern's comment on raiding scheme mentioned earlier.

Dodd and Ruback examine the hypothesis by presenting evidence on wealth impacts of both successful and unsuccessful offers. Their sample contains 133 successful target firms and 33 unsuccessful target firms involved in tender offers over the period 1958-76. In the month of offer announcement, successful target firms realize an abnormal return of 21% and unsuccessful target firms earn an abnormal gain of 19%. Over the 3-5 years following the initial announcement, successful target firms realize an insignificant positive abnormal return, while unsuccessful target firms earn an insignificant negative abnormal return. Since both the successful and unsuccessful target firms do not show a significant difference in price adjustments, Dodd and Ruback conclude that the evidence is consistent with the internal efficiency hypothesis.

However, Dodd and Ruback also observe that two-thirds of the target firms in their sample are eventually acquired during the five years following the initial offer announcement. They caution that the maintenance of a positive announcement effect over the post-announcement period may also be attributed to the expectation of a future successful acquisition rather than the expectation of higher internal efficiency.

Bradley, Desai and Kim. Bradley, Desai and Kim[1983] test this idea of Dodd and Ruback's. Their sample consists of target firms involving in tender offers over the period 1963-80 and contains (1) 26 unsuccessful target firms that are not acquired over the five years following the initial unsuccessful offers,

and (2) 21 unsuccessful target firms that are subsequently acquired within the five years (but after the three months of initial unsuccessful offers).

Bradley, Desai and Kim observe positive stock price reaction over the three-month period beginning with the month before and ending with the month after the initial unsuccessful announcements for both groups of target firms. For the subsequently acquired target firms, the abnormal return is 22%, while for the unacquired target firms, the abnormal return is 20%. The similar price reaction for the two groups over this period indicates that at the time of the initial unsuccessful offer, there is no significant difference between the two groups concerning the expectation of a future successful offer.

However, these two groups show significantly different price behavior over the period from one month before to two years after the initial unsuccessful offer. The subsequently acquired target firms realize a substantial abnormal gain of 55% while the unacquired target firms earn only a 2% abnormal return. That is, the unacquired target firms lose almost all of the gains (20% on average) earned during the initial (unsuccessful) announcement period.

Since the abnormal returns are quite different between the subsequently acquired target firms and the unacquired target firms, the price adjustment at the time of the initial unsuccessful offer may reflect the expectation of a future successful acquisition. Bradley, Desai and Kim conclude that the

evidence does not support the internal efficiency hypothesis. Instead, they find that the evidence favors the synergy hypothesis, i.e., the assertion that permanent price adjustment relies on the eventual success of an acquisition offer.

In addition to the research reviewed above, other studies investigate whether: (1) managerial resistance is associated to its compensation package and (2) how managerial resistance affects the outcome of an acquisition offer.

Walkling and Long. Walkling and Long[1984] examine whether management's resistance is associated with its compensation package. They suggest that observation of a significant relationship between managerial resistance and its compensation would favor the managerial welfare hypothesis discussed earlier.

Their sample contains 95 cash tender offers filed with the Securities and Exchange Commission (SEC) over the period 1972-77. In order to analyze the motivation of managerial resistance, they partition their sample into two groups. The contested group contains 38 target firms where incumbent management contests the takeover throughout the life of the offer. The uncontested group contains 57 target firms where incumbent management never contests the offer.

Financial characteristics including firm size, profitability, financial leverage, dividend payout, systematic risk, and market-to-book value ratios are first compared on a univariate basis. No significant difference between the two

groups is found. More importantly, the two groups are similar in the size of premiums offered by the bidders. Next, the management compensation package of the two groups, including salary, options, and holdings in target shares, is compared. No significant difference is found in the two groups' managerial salary. However, the two groups show significant differences in management's shareholdings. The average shareholding of the contested directors is 8%, which is less than half of the 19% shareholding owned by uncontested directors. It is noteworthy that the shareholding is crucial to managerial welfare when a premium offer succeeds.

In order to estimate the potential gain to incumbent management, their shareholding is multiplied by the dollar bid premium to obtain their potential wealth gain from shares. This is added to the wealth gain from options (and later to the capitalized value of offer induced salary changes). For the uncontested group, the potential wealth gain to management amounts to 28 times their annual salary. In contrast, the potential wealth gain amounts to only 11 times the contested management's annual salary. Since the potential management benefit from an acquisition is the single most important factor explaining managerial resistance while most other factors have little explanatory power, Walkling and Long conclude that the evidence favors the managerial welfare hypothesis. They note, however, that the managerial welfare hypothesis need not exclude the shareholder welfare hypothesis. Their reasoning is that an

optimal compensation package should be designed to ensure that management interests and shareholder interests coincide.

Hoffmeister and Dyl. Hoffmeister and Dyl [1981] use multiple discriminant analysis to investigate the determinants of the probability of success of an acquisition offer. Their sample contains 267 cash tender offers over the period 1976-77. They examine the association between the probability of success and 17 selected variables. From these variables, Hoffmeister and Dyl report that managerial resistance is decisive in determining takeover success and managerial resistance is significantly related to a lower probability of success. They also report that firm size is the second important factor in determining tender offer outcomes and that smaller firms are more vulnerable to an acquisition threat than larger target firms.

Walkling. Walkling [1985] examines the determinants of tender offer success by using logistic analysis as well as traditional linear models. The explanatory variables examined include the bid premium, solicitation fee, managerial resistance, and bidders' holdings in target firms. Consistent with the evidence from Hoffmeister and Dyl, Walkling finds that managerial resistance is the most important factor relating to tender offer success: namely that managerial resistance is strongly associated with a lower probability of success. Walkling also finds that the probability of success is directly linked to bid premium size. Previous work had ignored announcement effects and utilized an incorrect measurement of the bid premium.

Summary of General Empirical Evidence on Managerial Resistance

The empirical evidence indicates that management resistance to an acquisition appears to relate to self-interest and is associated with a lower chance of successful acquisition. The evidence does not seem to support the internal efficiency hypothesis. The maintenance of a permanent price adjustment requires eventual completion of an acquisition. Thus, these findings favor the managerial welfare hypothesis. However, the evidence does not rule out the possibility that management resists an acquisition to prevent an inadequate offer from being successful. Moreover, management may resist a current offer to attract a higher bid premium.

Whether managerial resistance benefits shareholders or not depends on whether the potentially higher premium can more than offset the costs associated with the lower probability of success. More direct evidence on whether managerial resistance benefits target shareholders requires an examination of the price behavior of target shares. Previous studies that investigate the impact on target share prices are reviewed in the next section.

Managerial Resistance and Shareholder Wealth

Kummer and Hoffmeister. Kummer and Hoffmeister [1978] examine the impact of managerial resistance on target shares by measuring the price reaction for two major groups of target firms involved in tender offers over the period 1956-74. The resisted group contains 21 target firms with managerial resistance. The passive group contains 44 target firms where the incumbent

management either expressed agreement or neutrality or else remained silent about the proposed takeover offer. Announcement data and other related information are obtained from The Wall Street Journal Index and the SEC Statistical Bullitin.

Kummer and Hoffmeister find a higher price impact (20% abnormal return) for the resisted target firms in the announcement month. In contrast, shareholders of the passive target firms realiz a lower abnormal return (16%) over the same period. Kummer and Hoffmeister conclude that the required bid premium is higher for the resisted group than for the passive group.

Since managerial resistance is associated with a higher price reaction, this evidence is consistent with the shareholder wealth hypothesis as noted by Jensen and Ruback [1983]. [14] Kummer and Hoffmeister's study, however, can be criticized on three grounds, namely (1) a non-homogeneous sample period, (2) a small sample size, and (3) an inadequate data collection procedure.

First, as with several studies, their sample period (1956-74) encompasses the enactment of the Williams Act in 1968 and its Amendment in 1970. The Williams Act and its Amendment

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[14] Jensen and Ruback [1983], however, provide an alternative explanation. Since managerial resistance tends to raise the expected costs of bidding firms, potential bidders may not engage in acquisitions that otherwise (e.g., without resistance) would have been profitable. The truncation of these acquisitions would lead to an upward bias of measured abnormal return of observable takeovers that are resisted by incumbent management.

impose certain constraints on the bidders' ability to engage in an acquisition and give target management additional legal resources to use to defend an acquisition. Jarrel and Bradley[1980] report that the Act precipitated the incurrence of substantial costs to the bidding firm. Using a sample of 161 tender offers, Jarrel and Bradley find that the average bid premium paid by the bidder is 32% before the enactment of the Act. Subsequent to the Act, the average bid premium is 53% for target firms protected by federal law, and 73% for target firms protected by both state and federal anti-takeover laws. Since the impact of the Act is significant, and since management's ability to resist an acquisition is affected by the enactment of the Act, using a sample period that encompasses the enactment of the Act may introduce the confounding effect of the regulatory change when one attempts to measure the impact of managerial resistance. This potential confounding effect is avoided in the present study.

A second criticism of Kummer and Hoffmeister's study is that their sample size is relatively small (21 resisted target firms and 44 pasive target firms) and the sample period is long (1956 to 1974). Since the market conditions for corporate control may change over a long period, their results may involve considerable noise. The present study reduces this noise by choosing a larger sample from a much shorter sample period.

Finally, Kummer and Hoffmeister use The Wall Steet Journal Index as a source to determine whether incumbent management

resists an acquisition offer. While The Wall Street Journal Index provides a convenient abstract of key elements reported in The Wall Street Journal, the abstract could be too brief to reveal actual managerial reaction. Consequently, the results could be biased. The present study avoids this pitfall by examining both The Wall Street Journal and The Wall Street Journal Index to obtain information on managerial reaction.

Dodd. Dodd[1980] examines the market's reaction to the incumbent management's veto of a merger proposal. A merger proposal requires the approval of target management before a stockholder vote is taken. Hostile management may veto the merger proposal without referring the proposal to shareholders.

Dodd's sample contains groups of NYSE target firms involved in completed and uncompleted merger proposals over the 1971-77 period. The completed group consists of 71 target firms whose management and shareholders eventually approve the merger proposals. The cancelled group contains (1) 26 target firms whose management vetoes the merger proposals, and (2) 54 target firms that are terminated by either bidders or unidentified parties.

The abnormal returns over the day before and the day of the merger announcement are similar between the two groups. Both the completed and the cancelled group earn an abnormal return of 13%. There is, however, a significant difference between the two groups when the outcomes are released. For the completed group, the abnormal return over the two-day (announcement) period of

shareholder approval is insignificantly positive at 1%. In contrast, shareholders of management-cancelled target firms suffer an abnormal loss of 6%.

Dodd's evidence differs from that of Kummer and Hoffmeister. While Kummer and Hoffmeister report a higher abnormal return when management resists a tender offer, Dodd finds a price decline when management vetoes a merger proposal. Since management's veto is associated with a wealth loss to shareholders, Dodd's evidence is consistent with the managerial welfare hypothesis as noted by Jensen and Ruback[1983].

Dodd's study also differs from that of Kummer and Hoffmeister in terms of the timing of managerial resistance. Kummer and Hoffmeister measure the impact of managerial resistance at the initial announcement of tender offers, while Dodd examines the impact at the outcome announcement. Since management's reaction to an acquisition offer may have been disclosed before the outcome date and may have been partially reflected in stock prices, abnormal returns at the outcome announcement will not capture the entire impact of managerial resistance. Instead, the abnormal return at the outcome date only measures any unanticipated effects of managerial resistance on the outcome date. Since management's reaction may have been disclosed to differing degrees before the outcome date, the effect of unexpected managerial reaction may vary across sample firms and result in different outcome effects. The variation in this pre-outcome disclosure among target firms may bias Dodd's

results.[15],[16]

Payment Method

An acquisition transaction may be executed through payment of cash, stock, or a combination of cash, stock, debt, warrants, etc.... In an ideal world that does not involve taxes, information asymmetry, and various forms of transaction costs, the selection from different payment methods should not affect the wealth of the participating parties.

When the various perfect market assumptions are relaxed, however, the selection of payment method may affect shareholders'

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[15] For example, in Dodd's study, abnormal return to the completed group is insignificantly different from zero. This may be interpreted to mean that the market actually anticipates the outcome before the outcome date; hence, no further price adjustment is needed. Interestingly, Dodd's evidence seems to suggest that the market does not predict the outcome of the cancelled group as well as the completed group since significant price decline is observed for the cancelled group. It should be noted that Dodd measures outcome effects for the completed group at the time of shareholder approval, rather than managerial approval. The impact of managerial approval is not reported in Dodd's study.

[16] The focus of this thesis is upon initial acquisition announcements. These announcements rarely reveal specific defensive tactics. Nevertheless, previous research has examined the economic impact of various defensive strategies target management employs. These strategies include premium buybacks (Dann and DeAngelo[1983], Bradley and Wakeman[1983]); standstill agreements (Dann and DeAngelo[1983]); anti-takeover amendments (DeAngelo and Rice[1983], Linn and McConnell[1983]); and changes in state of incorporation (Dodd and Leftwich[1980]). The results of these studies are contradictory. The adoption of anti-takeover amendments and a change in the state of incorporation do not seem to materially affect shareholders' wealth. However, standstill agreements and premium buybacks appear to hurt shareholders.

welfare. Factors that contribute to the relevance of payment method in an acquisition offer include: (1) taxes and accounting treatments, (2) regulations on stock financing, (3) information conveyed by payment method, and (4) basic financial variables associated with the choice of payment method. The following paragraphs discuss these issues in more detail.

Tax Hypothesis

Carleton, Guilkey, Harris and Stewart[1983] provide a cogent description of the relationship between payment method and taxes involved in merger transactions. A merger, which is an exchange of assets, may be ruled as either taxfree or taxable under current United States tax codes. The label taxfree is somewhat of a misnomer since target shareholders do pay taxes on capital gains when they actually sell their shares. On the other hand, target shareholders of a taxable merger must pay taxes for the capital gains they realized.[17] Thus, a taxfree merger enables target shareholders to defer tax payments on capital gains realized from the transaction.

Whether a merger is ruled as taxfree or taxable is determined largely by its payment method. In general, a taxfree acquisition requires target shareholders to continue their ownership after the acquisition. Since a cash acquisition requires target shareholders to give up their ownership in

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[17] Alternatively, shareholders involved in a taxable merger can deduct tax payments on the capital losses they realize. In general, however, target shareholders realize gains from a merger.

exchange for the cash payment, the transaction is necessarily taxable. By similar reasoning, a stock transaction that involves an exchange of voting shares would be taxfree. Other types of transactions that use mixed payment methods (e.g., convertible preferred stocks) could be ruled as either taxable or taxfree, depending upon the specific situation. Thus, according to the tax argument, cash offers should involve higher bid premiums than stock offers in order to compensate target shareholders for the immediate payment of capital gains taxes.

The payment method also affects the accounting treatment of an acquisition. Two major accounting treatments for an acquisition are the pooling method and the purchase method. In a pooling method, the combining entities' assets, liabilities and equities are simply added together. In contrast, a purchase method requires that any excess of purchase price over book value of the target firm be reported as goodwill and amortized. The amortization is not deductible for corporate tax purposes and does not cause an increase in cash flow. Some authors assert that the purchase method reduces earnings per share and represents a disadvantage from the perspective of bidders. The empirical evidence by Hong, Kaplan and Mandelker[1978] does not seem to confirm such assertions. Their analysis of the cumulative abnormal residuals for mergers finds no differential advantage of one form over another.

Regulation Hypothesis

Wansley, Lane and Yang[1983] point out that regulatory procedures may affect the selection of payment method in an acquisition offer. A bidding firm choosing a stock offer must obtain a registration statement before target shareholders may start to tender their shares. The registration statement needs to be approved by the Securities and Exchange Commission and may take several months to obtain. In contrast, a bidding firm choosing to pay cash may start to acquire target shares within several weeks following the mailing of the offer to target shareholders. Thus, cash offers facilitate speedier acquisition transactions.

Efficiency in timing could be crucial for the success of an acquisition offer, especially for a hostile acquisition. A longer processing time, as in the case of a stock offer, equips target management with the ability to launch a defensive strategy. Additional bidders may also be induced to join the competition. Consequently, Wansley et al suggest that a bidder may be willing to pay a higher premium in a cash offer even though it is more costly to do so since a stock offer may subject the bidder to a larger risk of failure.

Information Hypothesis

In a capital market where information asymmetry exists management cannot efficiently communicate the true value of the firm to the market. A bidding firm may choose to pay for a target firm in cash or stock depending on whether it believes the

market has under- or overvlued its own securities. Walkling and Schwartz[1984] investigate the notion that a bidder that believes its stock is overpriced would choose to pay for the target firm in stock. Alternatively, a bidder who pays in cash may believe its own stock is undervalued. Thus, the payment method chosen in an acquisition offer serves as a tool to signal the true value of the bidding firm to the market. Also, if a stock offer does signal the overpricing of the bidding firm, target shareholders may prefer to receive cash rather than stock.

Basic Variables Hypothesis

Finally, Halpern[1983] argues that payment methods may be associated with certain basic financial variables that affect the selection of payment method in an acquisition offer. The payment method may relate either to the target firm's size or to the rate of return on the market portfolio.

In the following section, empirical evidence on the wealth effect of payment method is reviewed.

Empirical Evidence on the Effect of Payment Method

Carleton, Guilkey, Harris and Stewart. Carleton et al[1983] investigate whether the selection of payment method is related to the target firms' financial characteristics such as liquidity, financial leverage, profitability, dividend payout, size, price earnings ratio, and the market-to-book value ratio. Their sample contains 61 target firms, of which 30 are cash offers and 31 are stock offers. Their sample is restricted to manufacturing and mining industries over the two years 1976 and

1977. Using t-statistics, they observe that target firms involved in stock offers have higher profitablilty, dividend payout, and market-to-book value ratios. A multivariate examination using logistic regression confirms that target firms in stock offers are associated with higher payout and market-to-book value ratios.

Carleton et al attribute the relevance of the market-to-book value ratio to tax considerations. They suggest that a higher market-to-book value ratio may indicate higher capital gains for target shareholders. To avoid the higher capital gains taxes, target shareholders would prefer a stock transaction which defers capital gains taxes.

However, they find out that the higher payout for target firms involved in stock offers is inconsistent with the tax hypothesis. If dividend clienteles exist, high payout target firms are held by low tax bracket investors and vice versa. High tax bracket investors would prefer a stock transaction to avoid a presumably higher tax payment. This implies that stock offers should be associated with lower payouts in target firms. This prediction is not supported by their empirical findings.

Walkling and Schwartz. Walkling and Schwartz[1983] also investigate the relationship between the selection of payment method and the participating firms' financial characteristics. Unlike the study of Carleton et al who primarily examine target firms, Walkling and Schwartz also examine the financial characteristics of bidding firms, and investigate the

classification accuracy of the various models tested. Their sample contains 22 stock acquisitions and 48 cash acquisitions over the period 1970-80.

Walkling and Schwartz observe a higher market-to-book value ratio for target firms in stock offers. This finding is consistent with that reported by Carleton et al. However, Walkling and Schwartz observe no significant difference in payout and profitability of target firms between cash and stock offers. Instead, they find firm size and liquidity to be significantly different between cash and stock offers. Target firms involved in cash offers are significantly larger in size and are more liquid relative to those involved in stock transactions.

Walkling and Schwartz observe a higher price-earnings, market-to-book value and payout ratios for bidders in stock offers than for bidders involved in cash offer In addition, bidders in stock offers tend to have lower degrees of liquidity. The evidence is consistent with the hypothesis that the management of bidding firms with higher price-earnings ratios may feel that their stock is overpriced, and therefore would choose to pay in stock. A separate finding is that bidding firms with higher liquidity are more likely to pay in cash.

Gordon and Yagil. Gordon and Yagil[1981] examine payment methods and their impact on the share prices of target firms. Their sample contains 62 target firms listed as being involved in pure conglomerate mergers by the Federal Trade Commission[18] over the period 1948-76. Of these 62 target firms, 44 involve

stock mergers and 18 involve cash offers. The abnormal returns over the 8 months before and including the merger month are 19% for stock transactions and 32% for cash offers. Thus, shareholders of target firms involved in cash mergers earn much higher abnormal returns than their counterparts in stock mergers.

Several comments are in order for Gordon and Yagil's study. First, they measure the market's reaction relative to the merger date rather than relative to the initial announcement date of a merger offer. Since merger informaion, including the selection of payment method, may have been released before the merger date, the market's reaction to the event should have impounded in stock prices when the relevant information reaches the market. Choosing the merger date as the event date does not provide an accurate measure of the market's reaction, especially when the actual timing (relative to the merger date) of information disclosure differs across the sample firms.

Second, Gordon and Yagil restrict their sample to completed mergers. Offers that were eventually unsuccessful are not examined. The documentation of Jensen and Ruback[1983] suggests that around one-third of the merger offers in their surveyed studies are unsuccessful. Thus, Gordon and Yagil's sample may be subject to the ex-post selection bias Jensen and Ruback cite.

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[18] The FTC classifies mergers as horizontal, vertical and conglomerate. The conglomerate mergers further include three categories: market extension, product extension and pure conglomerate offers.

Finally, their sample period of 29 years from 1948 through 1976 may be long enough to introduce noise from changing market conditions. As mentioned earlier, Jarrel and Bradley[1980] report a significant increase in bid premiums after the enactment of the Williams Act in 1968 and its Amendment in 1970. In addition, Carleton et al[1983] note a significant increase in the proportion of cash offers over the period 1966-78. Thus, Gordon and Yagil's sample period may involve significant changes in the environment of the market for corporate control affecting both bid premium size and the selection of payment method.

Wansley, Lane and Yang. Like Gordon and Yagil, Wansley et al[1983] also examine the impact of payment method on target shareholders' wealth. Their sample is restricted to completed mergers and is subject to the ex-post selection bias mentioned earlier. Their sample contains 102 cash offers, 87 stock offers, and 12 mixed offers over the period 1970-78. Consistent with the study by Gordon and Yagil, Wansley et al observe higher abnormal returns for cash offers than for stock offers. Over the period 40 trading days before until 40 trading days after the mreger announcement date, the abnormal return amounts to 34% for cash offers, 18% for stock offers, and 12% for mixed payment offers. Target shareholders involved in cash mergers realize more substantial gains than those involved in stock offers. The abnormal returns, however, vary across their sample period from 1970 to 1978. Over the same 81 trading days period around the merger announcement, the abnormal return is 10% for the 1970

subsample and 32% for the 1978 subsample. There appears to be a significant increase in abnormal returns for the later part of their sample period. In an attempt to control the large year-to-year variation of abnormal returns, they compare cash offers and stock offers on an annual basis. They find that on average the abnormal return on cash offers still exceeds that for stock offers by 11%. Thus, the significant gains involved in cash offers cannot be attributed fully to the yearly variation in their sample period.

A separate part of their work examines whether firm size contributes to the difference in the price reaction to cash and stock offers. They do not find firm size to have any significant explanatory power for the difference between cash and stock offers. They conclude that the higher abnormal returns in cash offers may be due to the differential tax treatments, changing market conditions, and regulatory procedures for the different payment methods.[19]

Type of Acquisition

Mergers and tender offers are the two major types of acquisition.[20] In a merger, the board of directors must first

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[19] The tax issue is developed in more detail in Chapter IV. It will be shown that the tax effect is probably not large enough to explain observed difference in abnormal returns between stock and cash offers.

[20] Proxy contests are another means of obtaining corporate control. They differ from mergers and tender offers in that they do not require a transfer of share ownership. See Dodd and Warner[1983] for additional details.

approve the proposal before it puts the proposal to a stockholder vote. The board of directors can veto a merger proposal without referring it to stockholders. In contrast, a tender offer does not require approval from the board of directors. The bidding firm can bypass target management and ask target shareholders to tender (sell) their shares, typically at a significant premium over the prevailing market price. The shareholders then decide on an individual basis whether or not they want to relinquish share ownership. Although target management can still influence the outcome through various defensive strategies, tender offers represent a major alternative for bidding firms to circumvent target management and are especially useful in hostile takeovers.

Truncation Hypothesis

Jensen and Ruback [1983] suggest that managerial resistance may imply different bid premiums for mergers than for tender offers. Managerial resistance generally lowers the probability of success and increases the expected costs for bidding firms. The higher costs in a hostile takeover will cause bidding firms to forego acquisitions that otherwise (i.e., without resistance) would have been profitable. The truncation of these takeovers would lead to higher measured returns on groups of hostile takeovers. Jensen and Ruback suggest that this truncation phenomenon will result in higher measured abnormal returns for tender offers, which are more likely to involve hostile takeovers, than for mergers.

Jensen and Ruback survey recent research on mergers and tender offers and compute an average figure of the abnormal returns reported by the various studies. Since these studies have different sample sizes, the average figure is weighted by the different sample sizes involved. For merger studies, the weighted averaged abnormal returns to target firms are 8.5% on the day before and the day of merger announcements, and 16% over the one month period prior to merger announcement. The evidence is consistent with the survey of several merger studies by Weston and Chung[1983] who report an average of 15% abnormal returns to target firms involved in mergers.

For tender offers, Jensen and Ruback report average abnormal returns of 30.9% to target firms involved in tender offers over the period one to two months surrounding the offer announcement dates. (Some studies report one month abnormal returns, others report two months abnorml returns.) Since target shareholders earn much higher abnormal returns in tender offers than in mergers, Jensen and Ruback interprete this evidence as consistent with their truncation hypothesis.

However, most of the studies surveyed by Jensen and Ruback involve sample periods in the 1960's and 1970's and are subject to the noise caused by the legislative changes previously discussed. Moreover, the differences in sample periods among different studies make a direct comparison between mergers and tender offers difficult.

In addition, the significant variation in findings of studies surveyed by Jensen and Ruback may weaken the power to compare mergers to tender offers. Although the weighted average abnormal returns in tender offers seem much higher than those in mergers, previous findings vary across studies. Bradley and his co-authors report abnormal returns above 32% for tender offers, which is much higher than the average abnormal returns in mergers. In contrast, other tender offers studies (including Dodd and Ruback[1977] and Kummer and Hoffmeister[1978]) report an abnormal return at around 20%, which does not seem to be substantially higher than the price reaction of 16% in mergers.[21] There could be several reasons (such as methodology, sampling method and sample period) that lead to the different findings. These differences in past work suggest a need for further research before solid conclusions can be drawn on the market's reaction to the type of acquisition (e.g., mergers versus tender offers).

Finally, although mergers and tender offers may be associated with different managerial reactions, different types of acquisition may also relate to specific payment methods. For

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[21] The 16% is a weighted average of the abnormal returns reported by Dodd[1980], Asquith[1983], Eckbo[1983], Asquith, Burner and Mullins[1983], and Malatesta[1983]. See Jensen and Ruback[1983]. It is noted that Dodd reports an abnormal return at 22.1%, which is considerably higher than the 14.7% average for the rest of the studies mentioned in this footnote. One possible reason is the difference in sample period; Dodd's sample period was the 1970's while the rest of the studies occurred in the 1960's and 1970's.

example, tender offers are primarily financed by cash while mergers may involve both cash and stock transactions. Empirical evidence by Gordon and Yagil [1981] and Wansley et al [1983] suggests that, for target firms involved in mergers, abnormal returns are much higher for cash offers than for stock offers. To the extent that payment method and type of acquisition are dependent, the observed higher price reaction in tender offers could be attributed, at least in part, to the focus on cash as a payment method. Previous work does not explicitly address this issue. The present study examines the possibility that the abnormal returns for different types of acquisition may be partially attributed to their use of different payment methods.

Summary of Past Work

Past work most pertinent to this dissertation is summarized in Table 1 and discussed below.

Omitted Variables

An acquisition announcement generally contains information on factors such as the type of acquisition, target management's reaction, payment method, terms of the acquisition, and identity of the bidder. Information on these factors should be impounded simultaneously in security prices near the time the acquisition is announced. Examination of the market's reaction to the disclosure of each specific factor requires consideration of the influence of the others. Failure to consider the interdependence among the relevant factors may lead to biased results. This bias

Table 1. Summary of Previous Studies

Studies	Findings	Comments
Managerial Resistance		
1. Kummer and Hoffmeister	Higher abnormal returns for managerial resistance.	1. Does not control for the effect of the Williams Act. 2. Does not control day 1 bias. 3. Obtains acquisition information from the WSJI.
2. Dodd	Lower abnormal returns for managerial resistance.	1. Does not control for the effect of payment method. 2. Does not control day 1 bias. 3. Does not control pre-outcome disclosure.
Payment Method		
1. Gordon and Yagil	Higher abnormal returns for cash offers than for stock offers.	1. Samples contain only consummated mergers. 2. Measures market reaction at merger consummation date. 3. Does not control for the effect of the Williams Act. 4. Does not control day 1 bias. 5. Does not control for the effect of managerial resistance.
2. Wansley, Lane and Yang	Higher abnormal returns for cash offers than for stock offers.	1. Sample is restricted to consummated mergers. 2. Does not control for the effect of managerial reaction. 3. Does not control day 1 bias.
Type of Acquisition		
1. Bradley and coauthors (tender offer studies)	Higher abnormal returns in tender offers (than in mergers).	1. Does not control for the effect of the Williams Act. 2. Does not control for the effect of managerial resistance. 3. Does not control day 1 bias.
2. Dodd and Ruback (tender offer study)	Much lower abnormal returns than those reported by Bradley et al.	1. Does not control for the effect of managerial resistance. 2. Does not control for the effect of the Williams Act. 3. Does not control day 1 bias.

may be serious if the various factors have a high degree of interdependence. Most previous research does not consider this issue. Research on mergers and tender offers, for example, generally does not consider the potential interdependence between the type of acquisition and the payment method. Research on payment methods has ignored the influence of managerial reaction to an acquisition offer. Thus, previous work could be questioned on the basis of its inability to consider potential interdependent factors.

Regulatory Change

In addition, much of the previous work uses a sample period over the 1960's and 1970's (see, for example, the survey by Jensen and Ruback[1983]) that encompasses the enactment of the Williams Act in 1968 and its Amendment in 1970. Jarrel and Bradley[1980] report significant increases in bid premiums paid by bidding firms after the enactment of the Act and its Amendment. Therefore, results of previous research may be confounded by the effect of the major regulatory changes in the corporate control market.

Ex-Post Selection Bias

Several past researchers, (e.g., Gordon and Yagil[1981] and Wansley et al[1983]) restrict their samples to completed mergers. The survey by Jensen and Ruback[1983] indicates that around one-third of acquisitions are unsuccessful. Restricting samples to completed acquisitions may subject the studies to what Jensen and Ruback term "ex-post selection bias".

Contradictory Findings

Finally, many previous empirical findings are inconsistent. In the research of the wealth impact of managerial resistance, Kummer and Hoffmeister[1978] report favorable market reaction when target management opposes a tender offer; in contrast, Dodd[1980] documents a negative price performance when incumbent management vetoes a merger proposal. In tender offer studies, Bradley and his co-authors[1980, 1983] consistently report abnormal returns to target shareholders above 32%, which are substantially higher than the average figure of 16% for target firms involved in mergers (see Jensen and Ruback[1983]). In contrast, Dodd and Ruback[1977] and Kummer and Hoffmeister[1978] document abnormal returns to target firms involved in tender offers at around 20%, which is much closer to the 16% in mergers. The inconsistent findings of past work make it difficult to draw a solid conclusion on the wealth effects of both managerial resistance and the type of acquisition (e.g., mergers versus tender offers).

The inability of the past research to consider potential interdependence among several factors, to isolate the confounding effect of major regulatory changes in the corporate control market, to reduce ex-post selection bias, and to provide consistent evidence suggests a need for further work.

Objectives

This dissertation examines the market's reaction to the disclosure of several crucial acquisition factors by utilizing a

multivariate analysis, isolating the effect of the Williams Act and its Amendment, and choosing a representative sample that reduces ex-post selection bias.

In addition to investigating the wealth effects of managerial resistance, payment method, and mergers and tender offers, the present study also examines the wealth impacts of the announcement of investment offers, terms of the acquisition, the bidders' identity, and several other issues that have not previously been addressed in the literature.

The next chapter describes the issues to be examined and the methodology used in this research.

CHAPTER III

RESEARCH DESIGN

Dissertation Objectives

The objectives of this dissertation are twofold: examining market's reaction to acquisition announcements in a multivariate setting and presenting empirical evidence on issues that are largely ignored by the past research.

Multivariate Analysis. First, this dissertation extends previous literature by examining the market's reaction to : (1) target management's reaction, (2) payment method, and (3) mergers and tender offers. These issues are examined because they are major acquisition variables. Moreover, information on these aspects is generally disclosed in an acquisition announcement and should therefore be incorporated in security prices near this time. Simultaneous examination of these issues allows consideration of potential interdependence.

To overcome other weaknesses of past research, the present study : (1) avoids the confounding effect of regulatory change by using a more homogeneous sample period, (2) reduces ex-post selection bias by collecting a sample more representative of the acquisition population, (3) reduces potential inaccuracy of acquisition information by verifying the information from both the Wall Street Journal and the Wall Street Journal Index, (4) uses a reasonably adequate sample size to perform statistical tests, and (5) allows a direct comparison of the market's

reaction to the disclosure of several major factors by avoiding potential noise due to differences in methodology, sampling procedure and sample period.

Other Issues. The second objective of this research is to examine issues that are largely ignored by the previous research. These include the market's reaction to the announcement of : (1) investment offers, (2) the terms of an acquisition, (3) the identity of the bidder, and (4) announcements that do not explicitly disclose acquisition types as mergers, tender offers, or investment offers.

Although some investment offers may reflect investors' attempts to gain from potential price appreciation, others may actually lead to subsequent acquisitions and should be incorporated in acquisition studies. The disclosure of the bidder's identity and acquisition terms may also have a significant influence on shareholders wealth.

Finally, an acquisition announcement does not always indicate whether it will be a merger, tender offer, or investment offer. These types of announcement are prevalent and deserve attention. Moreover, they provide a useful contrast to other types of acquisition.

The rest of this chapter contains two parts--data description and methodology. The three data issues are : (1) sample period, (2) sampling procedure, and (3) collection of information on the acquisition announcement. The second part describes the methodology for examining the price performance

surrounding the acquisition announcement date. An overview of the empirical procedure is contained in Table 2.

Data Collection

The following guidelines are used to develop a sample to examine the various issues raised in the previous section. The sample should : (1) represent the acquisition announcement population in order to reduce ex-post selection bias, (2) represent a homogeneous sample period to avoid significant environmental changes, (3) be of adequate size to allow meaningful statistical tests, and (4) provide information necessary to incorporate interdependent factors.

Sampling Procedure

Sample Period. This dissertation encompasses a sample period from April 1977 through September 1982. This period reduces the potential influence of environmental changes in the acquisition market. As mentioned previously, the Williams Act in 1968 and its Amendment in 1970 significantly raise the abnormal returns to target shareholders. Halpern[1983, p. 304] comments that research using a period covering the regulatory changes should be interpreted with caution. In addition to the regulatory change, the general market condition may also vary over a long time period.[1] Although the true impact of changing

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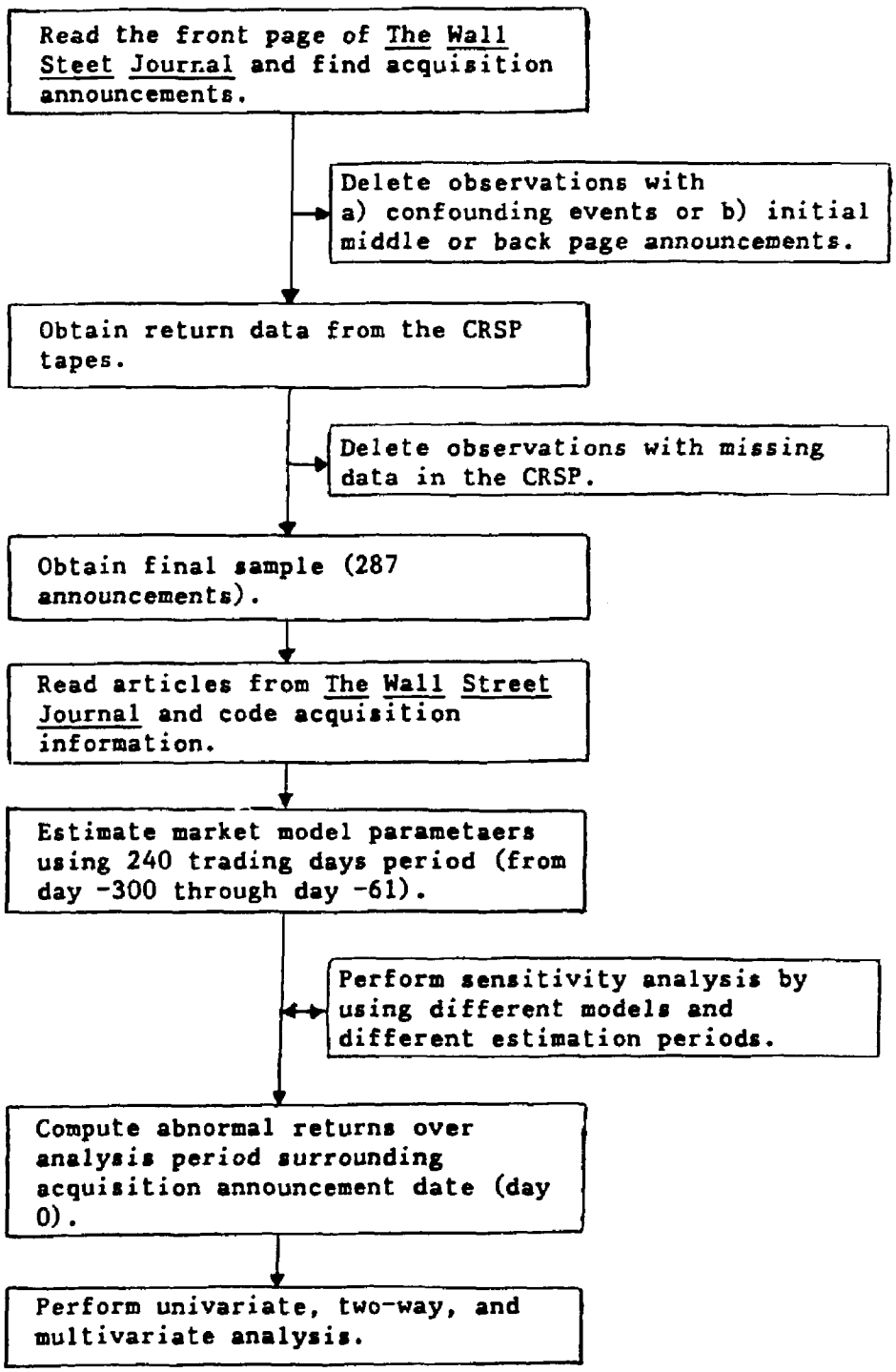
[1] For example, Wansley et al[1983] find the average abnormal returns to targets to be 10% in 1971, versus 32% in 1978 using their samples of 189 targets involved in mergers over 1970-78. Likewise, Walkling and Edmister[1984] also document a lower bid premium in 1972 and 1973 than subsequent years.

Table 2. Empirical Procedure

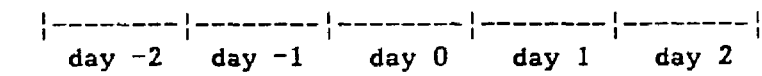


capital markets is not obvious, this dissertation attempts to avoid potential noise by excluding the early part of the 1970's and the period of the regulatory change from the sample period.

A second reason for choosing this time frame is that it involves an active acquisition period which provides an opportunity to collect adequate observations from a relatively homogeneous time horizon. Finally, the sample period includes the most recent time period not covered by much of the previous work.

Sampling Method. Many of the previous studies have restricted their samples to completed acquisitions and may be subject to ex-post selection bias. This dissertation attempts to reduce such bias by collecting samples through direct inspection of the front page of each issue of The Wall Street Journal over the sample period. The relevant articles in The Wall Street Journal are then consulted to obtain acquisition information. The identified acquisitions are further cross-checked from The Wall Street Journal Index to ensure that the front page announcements represent the initial announcements. Acquisition announcements initially reported in the middle or back pages (and later reported on the front page) are excluded from the final sample. Since initial front page announcements and initial middle or back page announcements may come from different populations, the results from this study cannot necessarily be generalized to announcements appearing initially on the middle or back pages. [2]

The sample must also satisfy the following screening rules. Sample firms must be contained in the CRSP daily return file. Moreover, return data must be available over the period surrounding the acquisition announcement date to allow an examination of price performance. Further, the sample firm must not have confounding news events reported on the day immediately after the announcement date, or over any trade-halted period around the announcement date. The reasons for this restriction are discussed below.



Let day 0 represent the date on which The Wall Street Journal initially reports an acquisition offer, day -1 the first trading day before day 0, day 1 the first trading day after day 0, and so forth (refer to the above diagram). Due to publication delays, an acquisition offer that occurs on day -1 will be reported on day 0 in The Wall Street Journal. The market's reaction depends on the actual timing of the offer. An acquisition offer that occurs before the close of market trading should be reflect in the stock price on that day. Alternatively,

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[2] Ideally, it would be preferrable to inspect every page of each issue of The Wall Street Journal. Time constraints preclude this alternative. It is conjectured that (initial) front page announcements and (initial) middle or back page announcements may be drawn from different populations. Front page announcements are likely to be more "newsworthy" (e.g., involving larger transactions).

if the offer is announced after the close of the market trading, its price impact will be reflected in the next day's trading. In general, it is very difficult to obtain the exact timing of an acquisition offer. The present study, following the conventional practice, measures the abnormal returns over day -1 and day 0 (hereafter referred to as the two-day announcement period) in order to evaluate the market's immediate reponse to an acquisition announcement.

Although day -1 and day 0 represent the most practical way to measure announcement effects, this measurement assumes that no new information occurs on day 0. News reports on day 1 pertain to events occuring on day 0. These events may affect the day 0 stock price if they occur before the close of market trading on day 0. This potential bias, hereafter referred to as day 1 bias, is ignored in previous work. To avoid this noise, The Wall Street Journal Index is examined to detect possible day 1 confounding reports. Target firms involved in such reports are excluded from the final sample.

Trading in the stock of some firms is halted pending or subsequent to an acquisition announcement. When trading is halted, daily returns are not available. Following Masulis[1980a, p. 153], when the daily return is not available on day 0, this study uses the next available trading price as a substitute to measure the announcement effect.

Although this substitution represents a useful alternative for measuring price performance when day 0 tradings are halted,

certain new information may be released during the trade-halted period and affect the subsequent stock price. Previous work has ignored this potential bias over the trade-halted period. In this dissertation, daily returns in the CRSP tape are first screened to locate trade-halted periods. The Wall Street Journal Index is then examined to identify possible confounding reports. Target firms involved in such confounding effects are excluded from the final sample.

Collection of Acquisition Information

For each acquisition offer that passes the screening criteria, specific announcement information is obtained from reading the article in The Wall Street Journal and then cross-checked from The Wall Street Journal Index. Data is obtained on whether:

(1) target management favors, opposes, or does not express a specific opinion about the offer;
(2) the payment method in the offer is cash, stock, a combination of various forms, or undisclosed;
(3) the type of acquisition is a tender offer, merger, investment offer, or undisclosed;
(4) the bidder's identity is disclosed or undisclosed; and
(5) the terms of the acquisition are disclosed or undisclosed.[3]

Managerial Reaction. This study classifies managerial reaction into three categories: favorable, unfriendly, and neutral. Although the three categories may appear to be a

natural selection, previous research has ignored the neutral group.[4]

Favorable managerial reaction ranges from verbal approval through written agreements. Thus this category includes situations in which management is pleased with an acquisition offer and situations where management definitely agrees to be acquired. In a similar fashion, unfavorable managerial reaction ranges from chilly managerial response to court actions that attempt to block an offer. The neutral category may involve situations where the incumbent management is holding preliminary acquisition talks or does not express explicit opinion. Examples of typical phrases from the announcements are shown in Table 3.

Payment Method. The payment method of an acquisition offer is classified as either cash, stock, mixed payment, or undisclosed. A cash offer may specify the dollar bid premium or may simply state that the offer will be a cash transaction. Similarly, a stock offer may specify the exchange ratio or may simply state the offer as a stock transaction. Mixed payments may involve cash, stock, notes, debentures, preferred convertible stock, or warrants. Finally, the payment method may be undisclosed in an acquisition announcement.

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[3] In addition to the information listed, the data on the outcome of an acquisition is also gathered from the Wall Street Journal Index. This involves the identification of the outcome date and its associated announcement. These data are used to examine post-announcement price behavior.

[4] Kummer and Hoffmeister[1978] classify managerial reaction as unfriendly or passive where the passive group includes favorable and neutral managerial reactions.

Table 3. Examples of Typical Phrases Relating to Mangerial Reaction

Favorable:

- agreed definitely to be acquired
- agreed to be acquired
- agreed in principle to be acquired
- signed letter of intent to be acquired
- tentatively agreed to be acquired
- reached agreement, subject to further negotiation
- pleased about an acquisition offer

Unfriendly:

- obtained a court order temporarily restraining the bid
- filed a suit in court to block an acquisition offer
- considered legal implications of the bid
- studied antitrust implications of the bid
- strongly opposed the takeover proposal, claiming the bid is far below the true value
- rejected the bid as inadequate
- spurned the offer
- expected to vigorously oppose the offer
- opposed the bidder's proposal
- gave chilly response to an acquisition proposal

Neutral:

- no comment
- directors will meet to discuss an acquisition bid
- holding preliminary talks, details not disclosed
- discussed a possible acquisition
- will study an acquisition proposal
- approached by a bidder concerning a potential acquisition

Type of Acquisition. The type of acquisition is classified as merger, tender offer, investment or undisclosed. A merger represents a combination of two or more entities, which requires the approval of both target and bidder boards of directors. If a merger proposal is approved by the board of directors, it then goes to stockholders for a approval.[5]

In a tender offer, a bidder may by-pass target management and ask target shareholders to sell their shares. The premiums offered are generally substantially above the prevailing market price. Shareholders will decide on an individual basis whether they want to sell their shares or not. A detailed tender offer announcement may disclose the minimum and/or maximum shares sought by the bidder, the starting date and expiration date of the tendering period. For a detailed discussion of tender offer terms see Walkling and Edmister[1984].

An investment offer usually involves an open market purchase of target shares.[6] An investment offer may reflect the buyer's attempt to gain from future price appreciation. Alternatively, it may be part of a planned acquisition program and subsequently followed by an acquisition.

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[5] In general, shareholders must approve a merger proposal by a two-thirds majority. The specific situation varies across different states. However, at least a simple majority is needed in all states. See Linn and McConnell[1983] and DeAngelo and Rice[1983] for a discussion of super majority clauses. These generally require a four-fifths or greater majority.

[6] The Securities and Exchange Commission requires that a Schedule 13-D be filed when an investor's holding of target shares changes by more than 5%.

In most cases, the type of acquisition is disclosed as either merger, tender offer or investment. At times, the type is not revealed. This is especially true when the negotiation is at a preliminary stage. Examples of different phrases used to identity the type of acquisition are shown in Table 4.

Terms of Acquisition. The terms of an acquisition may or may not be disclosed. Examples of disclosed terms are shown in Table 5.

Bidder's Identity. In most cases, the bidder's identity is disclosed at the initial acquisition announcement. However, Table 6 gives examples where the bidder's identity is not disclosed in the announcement.

Estimation of Price Performance

To measure price performance and test the relevant hypotheses, this dissertation employs the cumulative abnormal return approach developed by Fama, Fisher, Jensen, and Roll[1969]. The methodology is detailed by Fama[1976] and examined by Brown and Warner[1980]. This section describes this methodology, the sensitivity analysis, and the multivariate analysis used in this dissertation.

Abnormal Returns. To measure the economic impact of an acquisition announcement, abnormal returns are computed over an analysis period which typically spans an interval covering the acquisition announcement date. The abnormal returns are examined over the analysis period by comparing the actual returns to a

Table 4. Examples of Typical Phrases Relating to the Type of Acquisition

Tender Offer:

- the bidder made a tender offer for the rest of the target's shares
- the bider will seek any and all of the target's shares
- the bidder made a tender offer seeking 60% of the target's shares oustanding
- the bidder plans to acquire 49% of the target's shares
- the tender offer is conditional on the receipt of 51% of target shares
- the bidder plans to make a tender offer

Merger:

- the bidder plans to merge in a tax-free exchange of stock
- the target agreed to be merged as a subsidiary
- the bidder proposed to merge, but the offer is subject to a vote of target shareholders
- the bidder began merger talks with the target firm
- the target is holding merger discussion with the bidder

Investment:

- the bidder bought 7% of target shares for investment purposes
- the bidder increased holdings in target shares from 4% to 10%

Table 5. Examples of Typical Phrases Relating to the Disclosure of Acquisition Terms

- the offer is valued at 120 million dollars
- the bidder will pay $40 per share or about $80 million dollars
- the bidder is making a $20 per share offer

Table 6. Examples of Typical Phrases Relating to Non-Disclosure of Bidder's Identity

- the target is holding acquisition discussions with an unidentified bidder
- the target received an acquisition bid from an unidentifed suitor

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benchmark of expected returns. To obtain a benchmark, the first step is to choose a model that adequately describes the return generating process. The parameters in the chosen model are then estimated over an estimation period. The estimation period is generally chosen so that it is close to the announcement date but does not overlap with the analysis period. Coefficients in the model are estimated by fitting the model over the estimation period. The estimated parameters are then used to predict expected returns in the analysis period. Deviations from these predictions measure abnormal behavior associated with an (acquisition) announcement.

This dissertation utilizes the market model (described below) as the benchmark for predicting returns. The market model is the standard methodology used in the acquisition literature.[7] Using the market model allows a direct comparison

with other studies on similar issues. Brown and Warner[1980] report that the estimation of abnormal returns is insensititive to the selection of a model. Nevertheless, several sensitivity tests are performed in this study to ensure that the results are not sensitive to the model chosen. These tests include the mean-adjusted model and the market-adjusted model as described by Brown and Warner. Dimson's[1979] adjustment for infrequent trading is also performed along with Dodd's[1980] approach for testing stabibility of systematic risk.

The market model specifies the following linear relationship between the return on a security j and the return on a market portfolio:

$$R(j,t) = A(j) + B(j)*R(m,t) + E(j,t),$$

where

R(j,t) = the daily rate of return on security j over day t,

R(m,t) = the daily rate of return on the CRSP value weighted market index over day t,

B(j) = COV(R(j,t),R(m,t))/VAR(R(m,t)),

A(j) = expected value of (R(j)- B(j)*R(m)), and

E(j,t) = model error term of security j over day t, with

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[7] See, for example, the 1983 issue of the Journal of Financial Economics. The entire issue is dovoted to corporate control issues. The market model is utilized extensively in the reported research. It should be recognized, however, that the market model assumes a constant intercept and a stable beta. See page 93 (and footnote[4] on page 94) for further discussion on potential violation of these assumptions. (Unlike the market model, the CAPM is a two-factor model.)

expected value equal to zero.

To obtain estimates of the model parameters, an estimation period is chosen to fit the model. The observations from the estimation period are assumed to be unaffected by the event under study and therefore represent drawings from the normal return generating process. The estimation period is chosen as the period from trading day -300 through trading day -61, where the days are relative to the initial acquisition announcement. This estimation period is also examined by Bradley and Wakeman[1983]. Other estimation periods are also examined in sensitivity tests of the results.

The estimated model parameters are used to compute abnormal returns for an analysis period from day -50 through day 50 (including pre-, post- and announcement periods).

Let a(j) and b(j) represent estimates of model parameters A(j) and B(j). The abnormal return is computed as the difference between actual observations and estimated returns:

$$AR(j,t) = R(j,t) - [a(j) + b(j) * R(m,t)],$$

where

AR(j,t) = estimated abnormal return for security j over day t, and

t = the t-th day of the analysis period, measured relative to the acquisition announcement date.

Fama, Fisher, Jensen and Roll [1969] suggest a portfolio formation approach to examine the price impact of an economic event. The abnormal return on the portfolio is obtained by aggregating each sample firm's abnormal return:

$$AR(t) = (AR(1,t)+AR(2,t)+...+AR(N,t))/N$$

where

AR(t) = the aggregate abnormal return on day t, and

N = the number of firms with return data available on day t.

The aggregate abnormal return is equivalent to the mean abnormal return on a portfolio formed by an equal investment in each security.

The abnormal returns are cumulated over three subintervals in the analysis period: the pre-, post-, and announcement periods. The abnormal return over the announcement period measures the market's immediate response to acquisition information and is the major focus of this dissertation. As discussed before, the announcement period includes the day before and the day of the acquisition announcement (the announcement day is defined as the day on which an acquisition is initially reported in the financial press.) The cumulative abnormal returns (CAR) over the announcement period summarize the price impact over the two-day period, that is:

$$CAR(-1,0) = AR(-1)+AR(0).$$

In words, the cumulative abnormal returns over the period from day -1 through day 0 is equal to the sum of average abnormal returns on day -1 and day 0.

Both pre- and post-announcement period abnormal returns are examined to provide supplementary information on the market's reaction to acquisition announcements. The pre-announcement period abnormal return is computed for the 49 trading days before day -1, i.e.:

$$CAR(-50,-2) = AR(-50)+AR(-49)+...+AR(-2).$$

Previous research has documented significant abnormal returns during this period for various types of acquisitions. Abnormal returns over the pre-announcement period may be due to insider trading and the leakage of information. Alternatively, (at least some) investors may be able to predict acquisition announcements.[8]

The post-announcement period abnormal return is examined over the 50 trading days after the initial acquisition announcement, that is:

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[8] It is not uncommon to observe heavy trading before an acquisition announcement. For research that examines insider trading activities, see Keown and Pinkerton[1981]. For an example of a predictive acquisition model that earns abnormal returns, see Wansley, Cooley and Roenfeldt[1983]. The observation of significant abnormal returns over the pre-announcement period is clearly interesting for both researchers and practitioners. Further research on insider activity in this period would be valuable in enriching our understanding of this phenonemon.

$$CAR(1,50) = AR(1)+AR(2)+...+AR(50).$$

Under the assumption of semi-strong form market efficiency as defined by Fama[1976], the post-announcement period abnormal return should not significantly differ from zero. Nevertheless, several previous studies (e.g., Dodd[1980]) have documented significant abnormal returns over the post-announcement period. An adequate explanation of this is not obvious.

The statistical significance of the portfolio-based abnormal return can be evaluated through computing relevant t-statistics.[9] In general, the computation assumes that the distrubution of the return series of each security is normal, independent and homoskedastic. These assumptions are examined in more detail in Chapter IV.

The following steps summarize the procedure to compute a t-statistic for an aggregate abnormal return.

The first step involves computing the standard error for the return series of each security over the estimation period, i.e.,

$$s.e.(j) = \{ \sum_{t=-300}^{-61} [R(j,t) - R(j)]^2 / [N(j) -1] \}^{1/2},$$

where

s.e.(j) = standard error of security j,

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[9] For detailed descriptions of such computations, see Brown and Warner[1980].

R(j) = sample mean of security j's returns,

N(j) = number of observations of security j over the estimation period, and

t = trading day over the estimation period.

The second step involves computing the standard error for the return on the aggregate portfolio over each day in the analysis period, i.e.,

$$S.E.(t) = \{ [s.e.(1)^2 + s.e.(2)^2 + \ldots + s.e.(J)^2] / J \}^{1/2},$$

where

S.E.(t) = standard error of the return on the aggregate portfolio on day t, and

J = number of available sample firms on day t.

Similarly, the standard error for the cumulative abnormal return over a specific time interval can be computed in a similar fashion.

The third step involves computing the relevant t-statistics by dividing the abnormal returns by the relevant standard errors.[10]

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[10] There are other slightly different versions used to compute the t-statistics. In general, such differences do not affect the test of statistical significnce. See, for example, the footnote in Dodd[1980, p. 113].

Sensitivity Tests.

Although abnormal returns in an event study such as the present one may be insensitive to the selection of model as documented by Brown and Warner[1980] and DeAngelo and Rice[1983, p352], the sensitivity tests performed in this study provide direct evidence on the robustness of the results. The analysis of abnormal returns involves major issues such as : (1) the selection of a model that adequately describes the normal return behavior, (2) the selection of an estimation period to obtain estimates of model parameters, and (3) the adjustment for infrequent trading suggested by Dimson[1979] and Scholes and Williams[1977], and (4) consideration of changes in a security's systematic risk. These issues are examined in this dissertation and are discussed below.

Following Brown and Warner, this dissertation also examines the price performance by using the mean adjusted returns and the market adjusted returns as estimates of abnormal price behavior. In the mean adjusted approach, the mean of a security's returns over the estimation period is used as the benchmark to determine whether any abnormal price behavior occurs over the analysis period. This method has been used by Masulis[1978]. In the market adjusted approach, the rate of return on a market portfolio is used as a benchmark for the corresponding security return over the analysis period. This method has been used by Cowles[1933] and Latane and Jones[1979].

These two approaches are chosen to test the sensitivity of model selection because they provide the potentially larger deviation from the market model. The mean adjusted returns method does not adjust for both market performance and systematic risk. The market adjusted return approach, although adjusting for the market return, does not consider each firm's systematic risk (each firm is assumed to have systematic risk equal to one). Therefore, its predictions may deviate more from the market model than the capital asset pricing model does. Examination of abnormal returns based on the mean adjusted and market adjusted approaches should provide a conservative test of the sensitivity of the results to the choice of the model used. If the results and conclusions are insensitive to these models, they should also be insensitive to the use of models more closely related to the market model (e.g., the capital asset pricing model).

In an event study, an estimation period is selected to estimate model parameters. The choice of an estimation period involves the length of the period and the closeness of the period to an acquisition announcement. A shorter estimation period may increase the standard error of the estimated coefficients, while a longer period may subject the model to bias due to changes in a firm's business nature (hence, the security's risk) and/or changes in the overall market.

Similarly, an estimation period too close to an acquisition announcement may be subject to the influence of the announcement judging from the previous evidence of significant

abnormal returns over the pre-announcement period. On the other hand, an estimation period too far away from the announcement period is subject to the criticism that the nature of the security risk could have changed between the estimation period and the analysis period. This dissertation performs sensitivity analysis by choosing several estimation periods.

Infrequent trading in a security may bias the estimation of a security's systematic risk, as indicated by Scholes and Williams[1977] and Dimson[1979]. Dimson suggests the use of lagged and leading market returns as additional independent variables to adjust for this potential bias. He shows that such adjustment will (correct the bias due to infrequent trading and) lead to unbiased estimation of systematic risk. One advantage of the Dimson's procedure is its convenience in computation. The unbiased estimate of a security's systematic risk is shown to be the sum of the slope coefficients corresponding to the lagged, matched, and leading market returns (see p. 223 of Dimson's paper). This dissertation, following DeAngelo and Rice[1983, p. 353] and Bradley and Wakeman[1983, p. 306], uses the Dimson approach by including one lead and one lagged market returns as the additional independent variables.

Finally, Dodd and Ruback[1977, p. 358] indicate that the systematic risk of a security may change after an acquisition. They suggest an alternative estimation period to include both before-announcement and after-announcement intervals (both intervals do not overlap with the analysis period).[11] This

alternative approach is also tested in this dissertation.

Multivariate Analysis

The market's reaction to the various dimensions of acquisition announcements is examined through multifactor analysis of variance (see Neter and Wasserman[1974] for more discussion). As shown in Appendix 1, this is equivalent to a multiple indicator variable regression.[12] The analysis of variance model (shown for two factors: managerial reaction and payment method) is:

$$R(ijn) = RMEAN + MGT(i) + PAY(j) + ERR(ijn),$$

where,

R(ijn) = the abnormal return of observation n in ith category of managerial reaction and jth category of payment method.

RMEAN = grand mean of dependent variable,

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[11] Sample firms may be delisted after an acquisition. Consequently, the subsample where this technique is possible may not be representative of the original sample.

[12] In an analysis of variance model, the intercept term represents the grand mean of the dependent variable. In a indicator variable regression, the intercept term reflects the fitted value of the dependent variable when all the indicator variables are evalued at zero, while the other coefficients measure the deviation of the dependent variable from the intercept term. Since a qualitative variable can be coded into indicator variable(s) in different ways, the intercept in a indicator variable regression is affected by how a qualitative variable is coded. Consequently, the analysis of variance model is more easily interpreted. See Andrews, Morgan, Sonquist and Klem[1983, p. 37] for a comment on indicator variable regression.

MGT(i) = main effect of the ith category of managerial reaction,

PAY(j) = main effect of the jth category of payment method, and

ERR(ijn) = error term.[13]

Summary

The issues examined in this research have significant implications for both researchers and practitioners and represent major unresolved topics in the acquisition literature. Most previous studies on these issues can be criticized for their failure to examine announcements on a multivariate basis and some may be subject to ex-post selection bias, regulatory changes and potential errors in the collection of information.

This dissertation considers the interdependent effects in the study of acquisition announcements through both a two-way classification and multivariate analysis. Ex-post selection bias is reduced by collecting a sample more representative of the acquisition population and reducing potential inaccuracy of acquisition information through double checking from both the financial press and relevant index. This study also uses a large sample size from a time period (without major regulatory changes

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[13] The multifactor analysis of variance is computed using the SPSS[1975] subroutine: multiple classification analysis (MCA). MCA assumes an additive model. Consequently, the interaction effect is examined before applying MCA. The results of these tests are discussed in Chapter IV and Appendix 1.

such as the Williams Act and its Amendment) to perform statistical tests. Finally, it allows for more direct comparisons of several major acquisition related issues by avoiding complications due to differences in methodology, sample period, and sampling method. Previous comparisons have been limited to surveys of different pieces of research, each generally being restricted to one specific factor.

The second part of this chapter describes the standard cumulative abnormal return approach for measuring the market's reaction to acquisition announcements. The multivariate analysis and the various sensitivity tests used to examine the robustness of the results are also described.

CHAPTER IV

RESULTS

The previous chapter discusses the issues to be examined in this study, and describes the methodology employed in the various tests. The empirical results of these tests are reported in this chapter. The first part of the chapter describes the sample and provides answers to the following questions:

(1) What has been the dominant attitude expressed by target management in initial acquisition announcements?

(2) What payment methods were most popular over the sample period?

(3) What has been the distribution of different types of acquisition?

(4) Were terms of acquisition disclosed in most initial announcements?

(5) To what degree was the bidder's identity revealed in an initial acquisition announcement?

The second part of this chapter presents empirical results of the effects of the various acquisition-related factors on the security prices of target firms. The chapter concludes with an examination of the sensitivity analysis and a brief summary.

Data Description

This section first describes the results of the data collection process, followed by a description of sample

characteristics.

Sampling Results

Table 7 presents results of the data collection process. Direct inspection of the Wall Street Journal over the sample period April 1977 through September 1982 produced an initial sample of 464 target firms. From the 464 initial target firms, a final sample of 287 target firms was obtained. The 177 firms eliminated from the final sample involve: (1) 138 observations having initial announcements in either middle or back pages of The Wall Street Journal, (2) 20 cases with missing daily returns data over the pre-announcement periods, (3) 19 target firms having confounding announcements. These deletions are discussed below.

First, the purpose of this research is to investigate the market's reaction to initial acquisition announcements. As mentioned in Chapter III, due to time constraints, it was not feasible to check every word of The Wall Street Journal for acquisition announcements. This study is restricted to sample obtained from scrutiny of the front page of the Wall Street Journal. Consequently, when a check of The Wall Street Journal Index reveals that a front page announcement was preceeded (in time) by a middle of back page announcement, that case is deleted from the sample. It would be expected a priori that announcements which appear initially on middle or back pages came from a different population than announcements appearing initially on the front page. These "less newsworthy" initial

Table 7. Sample Collected over the Period 4/77 - 9/82

Year	77*	78	79	80	81	82*	Total
Initial Sample Size	45	67	101	106	102	43	464
Deletions:							
Middle or Back Page Announcements	14	7	32	41	30	14	138
Missing Data on CRSP Tape	-	7	3	6	3	1	20
Confounding Announcements							
Day 1 Announcements**	2	2	2	-	-	-	6
Suspended Trade Period***	1	4	2	-	5	1	13
Final Sample	28	47	62	59	64	27	287
Breakdown of Final Sample by Type of Acquisition							
Undisclosed	1	4	9	5	5	5	29
Tender Offer	10	16	12	14	15	7	74
Merger	14	19	18	21	20	9	101
Investment	3	8	23	19	24	6	83

* The sample period is from April 1977 through September 1982.

** The initial sample contains 85 cases with day 1 announcements. Most of these announcements appear innocuous. However, six of these cases are identified as having confounding (potentially biasing) information.

*** The initial sample contains 20 cases with announcements over a suspended trade period. Thirteen of these cases are identified as having confounding (potentially biasing) information.

announcements are an interesting group for future research. Nevertheless, since they are excluded from the present analysis care must be taken before generalizing the results of this research to the set of all acquisition announcements. The group examined here consists of the well defined set of all announcements which appear initially on the front page of The Wall Street Journal.

Second, the economic impact of an acquisition offer is examined over the period surrounding the offer announcement date. This examination requires at least part of the data to be available during the analysis period. The initial sample contains 20 observations with missing data over the pre-announcement and announcement periods. These observations were excluded due to inability to calculate abnormal returns.

Third, the initial sample contains 13 observations with day 1 confounding announcements and six cases with confounding reports over the trade-halted announcement period (see Chapter III for detail discussion on these biases). Following the conventional practice, this study measures the announcement effect over the two-day announcement period (i.e., day -1 and day 0, where day 0 is the day on which an acquisition announcement is reported in the financial press). Although the two-day period represents the most practical alternative in the literature, this convention requires the assumption that no confounding events occurred on day 0. Due to publication delays, news reported on day 1 actually occurs on day 0. If the day 0 event occurs before

the close of the market trading on day 0, it may affect the day 0 stock price. Under this situation, the conventional use of the two-day period may incorporate the effect of the confounding event. Previous work has ignored this bias. This dissertation avoids it by excluding the 13 observations with day 1 confounding reports (i.e., day 0 confounding events).

Moreover, daily returns may be unavailable over the announcement period if trading in the target's stock is halted. When this situation occurs, Masulis[1980] suggests using the first available daily return after the trade-halted period to substitute for the announcement day return. Although this substitution may result in a more adequate measurement of the announcement effect, such an approach requires the assumption that no confounding events occur over the trade-halted period. If confounding events do occur, they will affect the return on the 'substituted' announcement day and bias the measurement of the announcement effect. Previous studies have also ignored this bias. The present analysis uses the Masulis approach but excludes the six observations with confounding announcements over the trade-halted period.

The remainder of this section describes the sample as classified according to : (1) managerial reaction, (2) payment method, (3) type of acquisition, (4) terms of acquisition, and (5) bidder's identity. Table 8 gives an overview of the sample distribution over these five dimensions.

Table 8. One-way Classification of Sample

Factors	Distribution of Sample	
Managerial Reaction	**Cases**	**Percentage**
Favorable	113	40%
Unfriendly	38	13%
Neutral	136	47%
Total	287	100%
Payment Method		
Undisclosed	44	15%
Cash	174	61%
Stock	32	11%
Mixed	37	13%
Total	287	100%
Type of Acquisition		
Undisclosed	29	10%
Tender Offer	74	26%
Merger	101	35%
Investment	83	29%
Total	287	100%
Terms of Acquisition		
Undisclosed	59	21%
Disclosed	228	79%
Total	287	100%
Bidder's Identity		
Undisclosed	9	3%
Disclosed	275	96%
Rumored	3	1%
Total	287	100%

Managerial Reaction

Table 9 presents the distribution of managerial reaction over the entire sample and various subsamples. For the overall sample, target management either keeps a neutral position (47%) or expresses a favorable attitude (39%). Only a small portion (13%) of management expresses resistance in the initial announcement. This pattern is also true for the various subsamples.

Table 9, Panel B reports distribution of managerial reaction for the subsamples classified by different payment methods. Stock offers involve more friendly managerial reaction (66%) than cash offers do (37%). This observation is consistent with the contention that cash is a more frequently used payment method than stock when a bidder engages in a hostile takeover (see Carleton et al[1983, p. 814]).

Table 9, Panel C presents the frequency of various managerial reactions for subgroups by different types of offers. Mergers involve more friendly managerial reaction (64%) than tender offers do (37%). As Jensen and Ruback[1983] point out, a merger requires the approval of target management before the proposl is submitted for a stockholder vote. A tender offer does not require approval from target management. The difference, however, in target management's influence on mergers and tender offers suggests that (consistent with conventional wisdom) a hostile acquisition is more likely to be undertaken through tender offers than through mergers.

Table 9. Distribution of Managerial Reaction

	Managerial Reaction							
	Neutral		Favorable		Unfriendly		Sub-Total	
	Cases	%	Cases	%	Cases	%	Cases	%
(A) All Firms	136	47%	113	40%	38	13%	287	100%
(B) Payment Method								
Undisclosed	31	71%	8	18%	5	11%	44	100%
Cash	84	48%	65	37%	25	14%	174	100%
Stock	10	31%	21	66%	1	3%	32	100%
Mixed	11	30%	19	51%	7	19%	37	100%
(C) Type of Acquisition								
Undiclosed	18	62%	7	24%	4	14%	29	100%
Tender Offer	29	39%	27	37%	18	24%	74	100%
Merger	31	31%	65	64%	5	5%	101	100%
Investment	58	70%	14	17%	11	13%	83	100%
(D) Terms of Acquisition								
Undisclosed	40	68%	10	17%	9	15%	59	100%
Disclosed	96	42%	103	45%	29	13%	228	100%
(E) Bidder's Identity								
Undisclosed	6	67%	2	22%	1	11%	9	100%
Disclosed	127	46%	110	40%	37	14%	275	100%
Rumored	3	100%	0	0%	0	0%	3	100%

The frequency of unfriendly managerial reaction is compatible with that in past research. In the present data, 24% of the tender offers involve unfriendly managerial reaction. This percentage is the same as that reported by Kummer and Hoffmeister[1978, p. 510] in their study of tender offers.

Table 9, Panels D and E present managerial reaction for categories grouped by the disclosure or non-disclosure of acquisition terms and bidder's identity. Fail to disclose acquisition terms and bidder's identity is also associated with the non-disclosure of target management's attitude. This association suggests that for these cases the acquisitions may be at a preliminary negotiation stage.

Payment Method

Table 10 presents the distribution of payment method over the entire sample and several subsamples. For the overall sample, cash represents the major payment method, accounting for 61% of all observations. Table 10, Panel B reports frequency of payment methods for different acquisition subsamples. For both tender offers and investment offers, cash is the dominant form of payment. Eighty percent of the tender offers and 88% of investment offers involve pure cash trnsactions. This dominant use of cash in tender offers is consistent with previous literature (see, for example, Austin[1982]).

Unlike tender offers and investment offers, mergers involve a much more even usage of cash and stock. The merger subsamples consist of 32% cash offers and 32% stock transactions

Table 10. Distribution of Payment Method

	Payment Method									
	Undisclosed		Cash		Stock		Mixed		Sub-Total	
	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
(A) All Firms	44	15%	174	61%	32	11%	37	13%	287	100%
(B) Management Reaction										
Undisclosed	31	23%	84	62%	10	7%	11	8%	136	100%
Favorable	8	7%	65	48%	21	19%	19	17%	113	100%
Unfriendly	5	13%	25	66%	1	3%	7	18%	38	100%
(B) Type of Acquisition										
Undisclosed	15	52%	9	31%	0	0%	5	17%	29	100%
Tender Offer	7	9%	59	80%	0	0%	8	11%	74	100%
Merger	13	13%	33	32%	32	32%	23	23%	101	100%
Investment	9	11%	73	88%	0	0%	1	1%	83	100%
(D) Terms of Acquisition										
Undisclosed	37	63%	18	31%	2	3%	2	3%	59	100%
Disclosed	7	3%	156	69%	30	13%	35	15%	228	100%
(E) Bidder's Identity										
Undisclosed	3	33%	5	56%	0	0%	1	1%	9	100%
Disclosed	39	14%	168	61%	32	12%	36	13%	275	100%
Rumored	2	67%	0	0%	0	0%	0	0%	3	100%

with mixed and undisclosed cases comprising the reminder. The use of stock exchanges in mergers may be induced by the favorable tax treatment of capital gains, as suggested by Carleton et al[1983]. Previous studies also report significant use of stock payment in mergers. Wansley et al[1983] report that 87 out of 201 mergers in their sample are undertaken through stock exchanges. Gordon and Yagil's[1981] sample of 62 merger offers contain 44 stock transactions.

Panels C and D of Table 10 present the distribution of payment method for subsamples where acquisition terms and the bidder's identity are and are not disclosed. The disclosure of payment method is highly associated with the disclosure of both acquisition terms and bidder's identity.

Type of Acquisition

Table 11 presents the distribution of different types of acquisition offers. The entire sample is evenly distributed among tender offers (26%), mergers (35%), and investment offers (29%), with the remaining announcements (10%) not revealing the specific acquisition types. Table 11, Panel B gives the frequency of different types of acquisition for subsamples with different managerial reactions. For the subsamples with favorable managerial attitude, the major type of acquisition is merger (58%). In contrast, for the subsample with unfriendly managerial reaction, the major type of acquisition is tender offer (47%). This pattern is consistent with an earlier explanation: mergers require approval from target management

Table 11. Distribution of Type of Acquisition

	Type of Acquisition									
	Undisclosed		Tender Offer		Merger		Investment		Sub-Total	
	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
(A) All Firms	29	10%	74	26%	101	35%	83	29%	287	100%
(B) Managerial Reaction										
Undisclosed	18	13%	29	21%	31	23%	58	43%	136	100%
Favorable	7	6%	27	24%	65	58%	14	12%	113	100%
Unfriendly	4	11%	18	47%	5	13%	11	29%	38	100%
(C) Payment Method										
Undisclosed	15	34%	7	16%	13	30%	9	20%	44	100%
Cash	9	5%	59	34%	33	19%	73	42%	174	100%
Stock	0	0%	0	0%	32	100%	0	0%	32	100%
Mixed	5	14%	8	22%	23	62%	1	3%	37	100%
(D) Terms of Acquisition										
Undisclosed	15	25%	4	7%	16	27%	24	41%	59	100%
Disclosed	14	6%	70	31%	85	37%	59	26%	228	100%
(E) Bidder's Identity										
Undisclosed	5	56%	3	33%	0	0%	1	11%	9	100%
Disclosed	24	8%	71	26%	100	36%	82	30%	275	100%
Rumored	2	67%	0	0%	1	33%	0	0%	3	100%

(hence there are more observations of friendly offers). In contrast, tender offers allow bidders to bypass target management's veto power; hostile acquisitions are more easily accomplished.

Table 11, Panel C presents the distribution of type of acquisition for subsamples with different payment methods. For cash offers, the major types of acquisition are tender offers (34%) and investment offers (42%), with mergers accounting for a smaller portion (19%). In contrast, pure stock offers are used exclusively in mergers. For mixed payment offers, the major type of acquisition is merger (62%), followed by tender offers (22%).

Terms of Acquisition

Table 12 presents the distribution of announcements categoried by whether the terms of acquisition are disclosed. The terms of acquisition are disclosed for 79% of the entire sample, but undisclosed for the remaining 21%. Table 12, Panel B reports results for the subsamples classified by managerial reaction. A large proportion (91%) of the offers that receive favorable managerial response have acquisition terms revealed in the initial announcement. For the subsamples with unfriendly managerial reaction, a smaller proportion (76%) of the offers disclose their terms.

Table 12, Panel C reports results on terms for subsamples with different payment methods. A strong association between disclosure of payment method and disclosure of acquisition terms is observed. When payment methods are revealed in the initial

Table 12. Distribution of Terms of Acquisition

	Terms of Acquisition					
	Disclosed		Undisclosed		Sub-Total	
	Cases	%	Cases	%	Cases	%
(A) All Firms	59	21%	228	79%	287	100%
(B) Mnagerial Reaction						
Neutral	40	29%	96	71%	136	100%
Favorable	10	9%	103	91%	113	100%
Unfriendly	9	24%	29	76%	38	100%
(C) Payment Method						
Undisclosed	37	84%	7	16%	44	100%
Cash	18	10%	156	90%	174	100%
Stock	2	6%	30	94%	32	100%
Mixed	2	5%	35	95%	37	100%
(D) Type of Acquisition						
Undisclosed	15	52%	14	48%	29	100%
Tender Offer	4	5%	70	95%	74	100%
Merger	16	16%	85	84%	101	100%
Investment	24	29%	59	71%	83	100%
(E) Bidder's Identity						
Undisclosed	5	56%	4	44%	9	100%
Disclosed	52	19%	223	81%	275	100%
Rumored	2	67%	1	33%	3	100%

announcement, over 90% of the offers also reveal acquisition terms. When payment method is not reported in the initial announcement, 84% of the offers do not reveal the terms.

Bidder's Identity

Table 13 reports the frequency of acquisition announcements for the categories where the bidder's identity is and is not disclosed. A large proportion (96%) of the acquisiton offers report the identity of the bidder in the initial acquisition announcement. The small number of observations (9) that do not reveal the bidder's identity occurs mainly in the offers where other information is also not reported.

Abnormal Returns

This section examines the market's reaction to the announcement of an acquisition offer. The assumptions underlying the market model are analyzed followed by an overview of the abnormal returns for the entire sample. This is followed by a detailed analysis of the market's reaction to (1) management's attitude, (2) payment method, (3) type of acquisition, (4) terms, and (5) bidder's identity.

Tests of Model Assumptions

The parameters of the market model are estimated over the 240 trading day period from day -300 through day -61. An assumption of the market model is that the residual terms are independent, normal and homoskedastic.[1]

Table 13. Distribution of Bidder's Identity

	Bidder's Identity							
	Undisclosed		Disclosed		Rumored		Sub-Total	
	Cases	%	Cases	%	Cases	%		
(A) All Firms	9	3%	275	96%	3	1%	287	100%
(B) Managerial Reaction								
Neutral	6	4%	127	94%	3	2%	136	100%
Favorable	2	2%	111	88%	0	0%	113	100%
Unfriendly	1	3%	37	97%	0	0%	38	100%
(C) Payment Method								
Undisclosed	3	6%	39	89%	2	5%	44	100%
Cash	5	3%	168	86%	1	1%	174	100%
Stock	0	0%	32	100%	0	0%	32	100%
Mixed	1	3%	36	97%	0	0%	37	100%
(D) Type of Acquisition								
Undisclosed	5	17%	22	76%	2	7%	29	100%
Tender Offer	3	4%	71	96%	0	0%	74	100%
Merger	0	0%	100	99%	1	1%	101	100%
Investment	1	1%	82	99%	0	0%	83	100%
Terms of Acquisition								
Undisclosed	5	9%	52	88%	2	3%	59	100%
Disclosed	4	2%	223	97%	1	1%	228	100%

Table 14. Fractile of Frequency Distributions of the Sample Firms (N=287)

Fractile	Durban-Watson	Studentized Range	Goldfield-Quandt
.05	1.650	5.797	.542
.25	1.878	6.648	.841
.50	2.023	7.363	1.091
.75	2.183	8.461	1.394
.95	2.414	10.588	2.183
mean	2.047	7.798	1.197
median	2.027	7.389	1.091

Autocorrelation. Table 14 presents summary statistics for the Durban-Watson statistic (DW) of the 287 sample firms. The mean and median of the DW are 2.05 and 2.03 respectively. Using the 5% significance level, only 8.7% of the entire sample show significant negative autocorrelation (with the DW greater than 2.35) and 4.5% of the entire sample have significant positive autocorrelation (with the DW less than 1.65). These statistics suggest that the assumption of independence among residuals holds for most of the sample firms.

Homoskedasticity The homoskedsticity is examined through the Goldfield-Quandt (GQ) test. (See Johnston[1972] for details on this test and Bey and Pinches[1980] for discussion on other

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[1] For tests of these assumptions (in non-merger settings), see Fama[1976], Alexander[1980], Bey[1983], Bey and Pinches[1980], Modani, Cooley and Roenfeldt[1983], Carpenter and Chew[1983] and Schwartz and Whitcomb[1977].

tests of heteroskedasticity.) This test involves (1) ordering the observations by the size of the market returns, (2) omitting an appropriate number (M) of middle observations, (3) running seperate regressions on the first half and the second half observations (but excluding the M omitted observations), and (4) computing the GQ statistic as the ratio of the sum of squared residuals from one regression (with larger market returns) to the other.[2]

Under the assumption of homoskedasticity, the GQ statistic should have a F distribution. Table 14 reports that the mean of the GQ statistics over the entire sample is 1.20. On an individual basis, the null hypothesis of homoskedasticity is rejected for 12.5% of the sample firms at the 1% significance level (by using the interpolated cutoff point of 1.67). Thus, heteroskedasticity appears to exist for some sample firms.

When heteroskedasticity exists, the variance of beta (systematic risk) will typically be overstated. Nevertheless, the ordinary least square estimator of beta remains unbiased and therefore the estimation of cumulative abnormal returns is not seriously affected.

Normality. The assumption of normality can be examined through the studentized range (see Fama[1976] and Alexander[1980]). This statistic is computed as the difference

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[2] Johnston suggests that an appropriate number for M is 16 for a sample of 60 observations. This dissertation uses a sample period of 240 trading days. By extrapolation, 64 middle observations are omitted.

(between the maximum and the minimum values) scaled by the standard deviation. Table 14 reports that the mean of the studentized range for the entire sample is 7.80. This normality test indicates that the residuals are not normally distributed for many of the sample firms. The normality assumption is rejected for 57% of the entire sample at the 1% level (i.e., these firms have a studentized range greater than 7.20).[3] When the normality assumption is not met, the least square estimator of beta is still unbiased and thereby does not seriously affect the estimation of cumulative abnormal returns. The application of the t-statistic in significance testing, however, may be affected.

The estimation of beta may also be biased due to measurement errors in market returns (see Roll[1977]). Alternatively, the market model may be inadequate to describe the return generating process due to omitted variables (or misspecification of functional form).[4] In this dissertation, however, the market's reaction to acquisition announcements is examined through aggregation of sample firms. Portfolio formation can increase test efficiency by averaging out potential biases due to misspecifications and measurement errors. (See Griliches[1974] and Grandfelt and Griliches[1960] for discussion on errors in variables and aggregation.)

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[3] The cutoff point is interpolated from the table by David, Hartley and Pearson. (See Fama[1976, p. 40] for this table.)

Overview

The major results presented below are computed by using the market model as the benchmark to predict expected returns. Parameters in the market model are estimated over the estimation period from day -300 through day -61 (where day 0 is the day on which The Wall Street Journal initially reports the acquisition). With one exception, betas (systematic risk) for all target firms are positive. The mean and median of the estimated betas are 1.05 and 0.95 respectively. The distribution of the betas are reported in Table 15.

Table 16 presents abnormal returns for the entire sample. Three periods of cumulative abnormal returns (CAR) are computed. Announcement period abnormal returns are computed over the two-day period (day -1 and day 0), which measures the market's immediate response and is the major focus of this dissertation. Pre-announcement period abnormal returns are estimated over the period from day -50 through day -2. Previous work has documented significant abnormal returns over this period. Post-announcement abnormal returns are computed over the 50 trading days after the

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[4] Potential omitted variables include interest rate risk (see Stone[1974] and Bildersee and Roberts[1981]), financial structure (see Hill and Stone[1980]), dividend yield (see Stone and Bartler[1979]), default risk (see Carpenter and Chew[1983]), size, skewness, price-earning ratio, tax, and so forth. As a result, several alternative forms (e.g., the two-index model by Stone[1974] and multifactor model) and different measurements of risk (see Modani, Cooley and Roenfelde[1983]) have been proposed. (Of course, these potential biases may become more serious in the CAR study when the omitted variables change their values from the estimation period to the analysis period.)

Table 15. Distribution of Betas

Range of Beta	Cases	Percentage	Cumulative Percentage
-.2 ≤ Beta < 0.0	1	.3%	.3%
0.0 ≤ Beta < 0.2	3	1.1%	1.4%
0.2 ≤ Beta < 0.4	15	5.6%	7.0%
0.4 ≤ Beta < 0.6	24	8.3%	15.3%
0.6 ≤ Beta < 0.8	57	19.9%	35.2%
0.8 ≤ Beta < 1.0	56	19.5%	54.7%
1.0 ≤ Beta < 1.2	39	13.6%	68.3%
1.2 ≤ Beta < 1.4	33	11.5%	79.8%
1.4 ≤ Beta < 1.6	18	6.3%	86.1%
1.6 ≤ Beta < 1.8	13	4.5%	90.6%
1.8 ≤ Beta < 2.0	11	3.8%	94.4%
2.0 ≤ Beta < 2.2	7	2.5%	96.9%
2.2 ≤ Beta < 2.4	4	1.7%	98.6%
2.4 ≤ Beta < 2.6	1	.4%	99.0%
2.6 ≤ Beta < 2.8	1	.3%	99.3%
2.8 ≤ Beta < 3.0	0	.0%	99.3%
3.0 ≤ Beta < 3.2	2	.7%	100.0%
Total	287		

Mean	1.046
Median	.948
Variance	.266
Minimum	-.115
Maximum	3.04

Table 16. Distribution of Cumulative Abnormal Returns (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

Range of CAR	Pre-Announcement Period CAR(-50,-2) Cases	%	Announcement Period CAR(-1,0) Cases	%	Post-Announcement Period CAR(1,50) Cases	%
-.65 ≤ CAR < -.55					1	.3%
-.55 ≤ CAR < -.45	3	1.0%			2	.7%
-.45 ≤ CAR < -.35	3	2.1%			6	2.1%
-.35 ≤ CAR < -.25	2	2.8%			15	8.4%
-.25 ≤ CAR < -.15	17	8.7%			30	18.8%
-.15 ≤ CAR < -.05	25	17.4%	13	4.5%	67	42.2%
-.05 ≤ CAR < .05	56	36.9%	75	30.7%	76	68.6%
.05 ≤ CAR < .15	71	61.7%	75	56.8%	48	85.4%
.15 ≤ CAR < .25	59	82.2%	41	71.1%	22	93.0%
.25 ≤ CAR < .35	33	93.7%	34	82.9%	10	96.5%
.35 ≤ CAR < .45	11	97.6%	23	90.9%	7	99.0%
.45 ≤ CAR < .55	6	99.7%	14	95.8%	3	100.0%
.55 ≤ CAR < .65	1	100.0%	2	96.5%		
.65 ≤ CAR < .75			5	98.3%		
.75 ≤ CAR < .85			2	99.0%		
.85 ≤ CAR < .95			1	99.3%		
.95 ≤ CAR < 1.05			2	100.0%		
Mean	.095		.176		-.017	
Median	.096		.117		-.022	
Variance	.032		.039		.031	
Minimum	-.506		-.135		-.577	
Maximum	.599		1.023		.549	
% of Negative CAR	27.5%		12.5%		56.1%	

acquisition announcement.

Over the two-day announcement period, shareholders of all target firms in the sample earn, on average, a significant abnormal return of 17.6%. On an individual firm basis, 87.5% of the sample firms realize a positive gain over the two-day period. The remaining 12.5% of the sample firms suffer from a price decline.

Over the pre-announcement period from day -50 to day -2, the abnormal return for the entire sample, on average, amounts to 9.5%. The significant abnormal return over the pre-announcement period is consistent with evidence documented in the literature.[5] (See, for example, the survey by Jensen and Ruback[1983].) It should be noted that the positive abnormal return is an average figure for the entire sample firms. It does not necessarily imply that shareholders of each target firm can realize gains over the pre-announcement period. A further examination reveals that 28% of sample target firms actually suffer from a price decline over this period.[6]

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[5] The significant abnormal return over the pre-announcement period is consistent with the insider trading or information leakage hypothesis set forth by Keown and Pinkerton[1981]. Alternatively, certain investors may be able to predict the occurrence of an acquisition announcement, although such prediction is non-trivial. See Wansley, Roenfeldt and Cooley[1983] for an example of a predictive acquisition model that earns abnormal returns.

[6] The ability to explain why some target firms benefit while others suffer from an acquisition announcement (over pre-, post- and announcement periods) is clearly useful for both researchers and practioners. Future research on this issue would be valuable.

For the post-announcement period of 50 trading days after the initial announcement, the abnormal return is -1.7% for the entire sample. On an individual firm basis, 56% of the sample firms suffer from a price decline over this period. There appears to be a slight tendency for target firms to lose rather than to gain over the post-announcement period. A negative abnormal return over the post-announcement period is not uncommon in the literature. For example, Dodd[1980, p. 112] reports a 3% price decline over the 40 trading days after the acquisition announcement from his sample of 151 target firms involved in mergers.

Table 17 and Figure 1 reports the time series of abnormal returns for the entire sample. The t-statistics provide strong evidence that the cumulative abnormal returns over the pre- and announcement periods are significantly positive.[7] Over the pre-announcement period, the average daily abnormal return is no more than 0.3% until day -8 and is less than 1% until day -2. Since the abnormal returns appear to be more significant for the several days around the announcement day, the time series is presented on a daily basis over the period from day -20 through day 20, and on a 10-day basis for the remaining periods. The abnormal returns for the pre-, post- and announcement periods are cumulated seperately.

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[7] The slightly decreasing sample size over the post-announcement period reflects the fact that the daily return data for certain target firms are not available after the acquisition announcements.

Table 17. Abnormal Returns for All Firms (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

Day	Cases	AR	CAR	T(AR)	T(CAR)
-50	287.	.002	.002	1.602	1.602
-40	287.	-.001	.005	-.494	1.022
-30	287.	-.000	.005	-.276	.834
-20	287.	.002	.024	1.149	2.965
-19	287.	-.000	.023	-.345	2.857
-18	287.	.002	.025	1.658	3.102
-17	287.	.000	.025	.068	3.068
-16	287.	.001	.026	.477	3.104
-15	287.	.000	.026	.156	3.087
-14	287.	-.001	.026	-.564	2.952
-13	287.	-.000	.025	-.316	2.862
-12	287.	.003	.029	2.387	3.207
-11	287.	.002	.030	1.390	3.386
-10	287.	.001	.032	.832	3.475
-9	287.	.002	.033	1.243	3.625
-8	287.	.004	.038	3.021	4.043
-7	287.	.005	.043	3.598	4.539
-6	287.	.006	.049	4.250	5.122
-5	287.	.006	.054	3.904	5.642
-4	287.	.008	.062	5.414	6.371
-3	287.	.009	.071	6.511	7.244
-2	287.	.023	.095	16.247	9.491
-1	287.	.110	.110	77.185	77.185
0	287.	.066	.176	46.676	87.583
1	287.	-.002	-.002	-1.064	-1.064
2	287.	-.002	-.003	-1.289	-1.664
3	287.	-.003	-.006	-2.166	-2.609
4	287.	-.000	-.007	-.293	-2.406
5	287.	-.001	-.007	-.416	-2.338
6	287.	-.000	-.008	-.271	-2.245
7	287.	.000	-.007	.252	-1.983
8	287.	-.002	-.009	-1.074	-2.235
9	287.	.002	-.007	1.319	-1.668
10	286.	.002	-.005	1.142	-1.221
11	286.	.000	-.005	.272	-1.082
12	286.	-.002	-.007	-1.069	-1.344
13	286.	.002	-.005	1.165	-.968
14	286.	-.001	-.006	-.421	-1.046
15	286.	-.001	-.007	-.997	-1.268
16	286.	.003	-.004	2.362	-.637
17	286.	-.001	-.005	-.779	-.806
18	286.	-.002	-.006	-1.147	-1.054
19	285.	-.001	-.007	-.564	-1.156
20	284.	.001	-.007	.354	-1.047
30	280.	.001	-.014	.452	-1.818
40	274.	-.003	-.017	-2.171	-1.905
50	263.	.002	-.018	1.353	-1.731

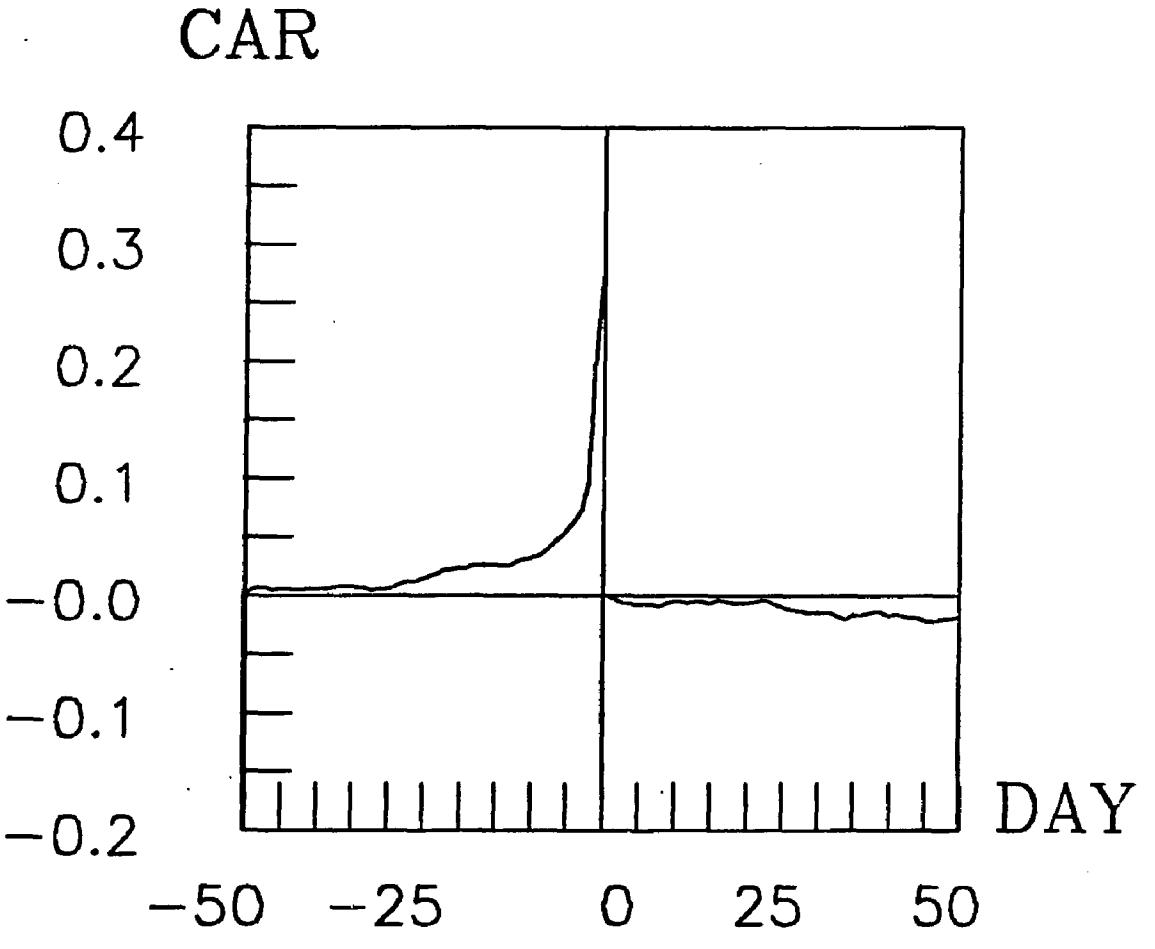


Figure 1. Cumulative Abnormal Returns for All Firms
(Abnormal Returns are cumulated seperately
for the Post-Announcement Period)

The remaining part of this section examines the hypotheses related to: (1) management resistance (shareholder welfare versus managerial welfare hypotheses), (2) payment method (tax hypothesis, information hypothesis, etc...), and (3) type of acquisition (truncation hypothesis). It also analyzes the market's reaction to the announcement of: (4) investment offers, (5) announcements not revealing the specific type of acquisition, (6) acquisition terms, and (7) bidder's identity.

Shareholder Welfare versus Managerial Welfare Hypotheses

The shareholder welfare hypothesis predicts a positive stock price impact from management resistance to an acquisition offer, while the managerial welfare hypothesis asserts a negative market reaction from management resistance. This dissertation examines these hypotheses by focusing on the announcement period abnormal returns which measure the market's immediate response to the acquisition announcement. Results from univariate, two-way, and multivariate analysis are presented. (Appendix 1 contains summary results from dummy variable regression and multifactor analysis of variance.) The market's reaction over the pre- and post-announcement period is also briefly discussed.

Previous Evidence--A Summary. Previous studies on the market's response to managerial resistance are inconclusive. Kummer and Hoffmeister[1978, p. 510] report positive market reaction when target management resists a tender offer. Over the announcement month, the abnormal return is 19.8% for the management-resisted target firms, compared to the 16.5% for

target firms whose management expresses a favorable or neut al opinion. In contrast, Dodd observes a price decline when target management vetoes a merger proposal. Over the two-day termination period (day -1 and day 0, where day 0 is the day the news of termination is reported in the financial press), shareholders of target firms suffer a price drop of 6% when management vetoes a merger proposal.

Univariate Analysis. Tables 18A and 18B and Figure 2 present abnormal returns and associated t-statistics for the three groups with different managerial reaction: favorable, unfriendly, and neutral. The cumulative abnormal return over the two-day announcement period is the highest for the unfriendly group (21.5%), followed by the friendly group (19.9%), and is the lowest for the neutral group (14.7%). The t-statistics indicate that the abnormal returns for the three groups are all significantly different from zero.

Since the unfriendly group is associated with slightly higher abnormal returns than the friendly group, the market seems to interpret managerial resistance as a good signal. This evidence appears to favor the shareholder welfare hypothesis which predicts a favorable market response when management resists an acquisition offer.

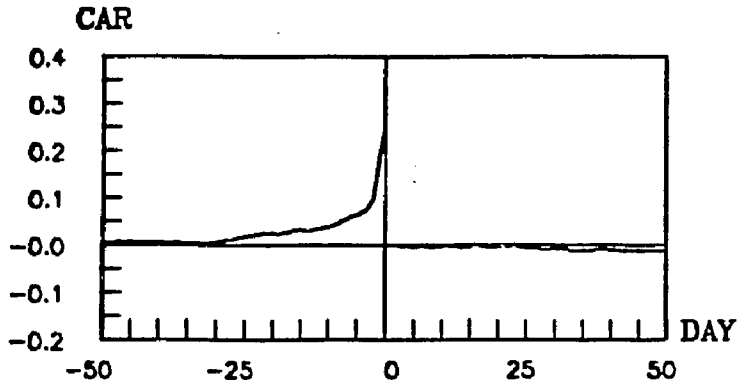
Although managerial resistance is associated with slightly higher abnormal returns, the evidence should be interpreted carefully. First, the comparison is based on average figures for different groups and does not apply for comparison among

Table 18A. Abnormal Returns by Managerial Reaction (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Neutral		Favorable		Unfriendly	
Day	AR	CAR	AR	CAR	AR	CAR
-50	.001	.001	.002	.002	.006	.006
-40	.000	.005	.001	.012	-.008	-.016
-30	.001	.004	-.001	.016	-.005	-.019
-20	.002	.024	.002	.029	.001	.003
-19	-.003	.022	.003	.033	-.004	-.001
-18	.003	.025	.003	.036	-.002	-.003
-17	.001	.026	-.003	.033	.004	.000
-16	.003	.030	-.000	.033	-.006	-.006
-15	.002	.031	-.001	.031	-.001	-.006
-14	-.001	.030	-.002	.030	.004	-.002
-13	-.001	.029	.001	.030	-.003	-.006
-12	.003	.032	.005	.035	-.001	-.006
-11	.002	.034	.001	.037	.005	-.001
-10	.003	.037	.002	.038	-.006	-.007
-9	.002	.039	.002	.040	-.002	-.009
-8	.006	.046	.002	.043	.003	-.006
-7	.005	.051	.004	.047	.007	.000
-6	.007	.058	.004	.052	.007	.007
-5	.003	.061	.007	.058	.012	.019
-4	.008	.069	.009	.067	.005	.023
-3	.007	.076	.010	.077	.015	.038
-2	.021	.097	.020	.097	.041	.078
-1	.083	.083	.138	.138	.123	.123
0	.064	.147	.061	.199	.092	.215
1	-.001	-.001	-.003	-.003	-.001	-.001
2	.001	.000	-.006	-.008	-.001	-.002
3	-.004	-.004	-.003	-.012	.002	.001
4	.001	-.003	-.002	-.014	-.001	-.000
5	-.002	-.005	.002	-.012	-.001	-.002
6	.001	-.004	-.001	-.013	-.004	-.006
7	.000	-.004	.000	-.013	.002	-.004
8	-.002	-.006	-.001	-.015	.000	-.004
9	.000	-.005	.000	-.014	.011	.007
10	.002	-.003	.002	-.012	-.001	.006
11	.003	-.000	-.001	-.013	-.006	.001
12	-.003	-.003	.000	-.013	-.001	.000
13	.000	-.003	-.000	-.013	.012	.013
14	-.001	-.004	.000	-.013	-.001	.011
15	-.000	-.005	.000	-.013	-.009	.002
16	.006	.001	-.000	-.013	.005	.007
17	-.003	-.002	.002	-.011	-.005	.002
18	-.003	-.004	-.000	-.011	-.002	-.001
19	-.000	-.004	-.001	-.012	-.003	-.003
20	.000	-.004	.001	-.011	.000	-.003
30	.003	-.008	-.002	-.016	-.001	-.033
40	-.003	-.012	-.002	-.012	-.010	-.056
50	.003	-.011	.001	-.014	.002	-.055

Table 18B. T-Statistics for Abnormal Returns by Managerial Reaction (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Neutral		Favorable		Unfriendly	
Day	T(AR)	T(CAR)	T(AR)	T(CAR)	T(AR)	T(CAR)
-50	.563	.563	1.039	1.039	1.565	1.565
-40	.034	.672	.331	1.553	-2.100	-1.267
-30	.564	.393	-.347	1.475	-1.234	-1.121
-20	.839	2.159	.712	2.242	.344	.142
-19	-1.293	1.896	1.434	2.460	-1.166	-.066
-18	1.592	2.144	1.181	2.628	-.527	-.157
-17	.644	2.223	-1.065	2.407	.937	.006
-16	1.707	2.479	-.190	2.340	-1.575	-.260
-15	.846	2.585	-.534	2.218	-.192	-.288
-14	-.708	2.434	-.704	2.072	1.065	-.109
-13	-.257	2.360	.215	2.080	-.811	-.239
-12	1.493	2.569	2.211	2.407	-.168	-.263
-11	.841	2.669	.581	2.469	1.277	-.058
-10	1.409	2.857	.642	2.539	-1.538	-.297
-9	1.204	3.008	.935	2.652	-.510	-.372
-8	3.081	3.443	1.050	2.782	.748	-.254
-7	2.687	3.808	1.796	3.021	1.769	.016
-6	3.586	4.301	1.870	3.265	1.763	.278
-5	1.378	4.457	2.910	3.659	3.097	.732
-4	3.765	4.958	3.749	4.167	1.247	.906
-3	3.598	5.426	4.203	4.730	3.870	1.455
-2	10.244	6.833	8.555	5.903	10.812	2.985
-1	40.978	40.978	58.584	58.584	32.737	32.737
0	31.698	51.390	25.762	59.642	24.469	40.451
1	-.473	-.473	-1.073	-1.073	-.134	-.134
2	.677	.144	-2.533	-2.550	-.275	-.289
3	-2.162	-1.131	-1.431	-2.908	.638	.132
4	.567	-.696	-.890	-2.963	-.275	-.023
5	-1.139	-1.132	.748	-2.316	-.386	-.193
6	.655	-.766	-.509	-2.322	-1.092	-.622
7	.009	-.705	.149	-2.094	.427	-.415
8	-.991	-1.010	-.625	-2.180	.003	-.387
9	.231	-.876	.191	-1.991	2.978	.628
10	.912	-.542	.884	-1.609	-.152	.547
11	1.640	-.022	-.495	-1.684	-1.502	.068
12	-1.604	-.485	.093	-1.585	-.135	.026
13	.089	-.441	-.029	-1.531	3.289	.939
14	-.587	-.582	.143	-1.437	-.344	.813
15	-.210	-.616	.007	-1.386	-2.515	.134
16	2.871	.121	-.036	-1.351	1.303	.456
17	-1.297	-.197	.833	-1.109	-1.305	.126
18	-1.239	-.484	-.129	-1.108	-.661	-.034
19	-.084	-.490	-.399	-1.170	-.722	-.199
20	.225	-.427	.278	-1.077	.060	-.180
30	1.441	-.710	-.637	-1.230	-.315	-1.587
40	-1.356	-.908	-.641	-.769	-2.484	-2.340
50	1.321	-.754	.438	-.809	.491	-2.052



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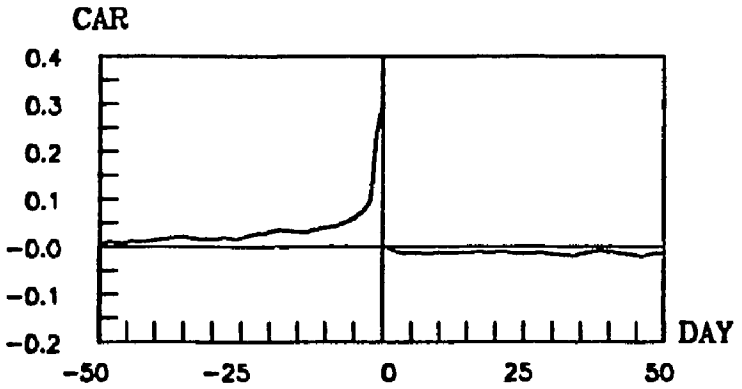

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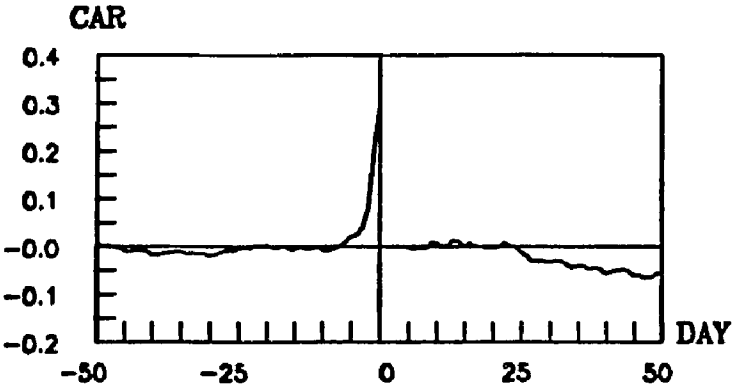

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Figure 2. Cumulative Abnormal Returns by Managerial Reaction
(Abnormal Returns are cumulated seperately
for the Post-Announcement Period)

individual target firms. It is still possible that for certain individual target firms managerial resistance leads to lower abnormal returns than does a favorable managerial response.

Further, the difference between the favorable group and the unfriendly group is small and statistically insignificant (t-statistic equal to .45 from univariate analysis). As a consequence, the results provide only weak evidence in favor of the shareholder welfare hypothesis. Previous research such as that by Kummer and Hoffmeister[1978] and Dodd[1980] does not report statistical significance on these issues.

Two-Way Analysis. When the effect of managerial reaction is examined over the subsamples of cash tender offers and cash investment offers, the same picture emerges; managerial resistance is associated with higher abnormal returns but the difference generally is not statistically significant (except in investment offers). For cash tender offers, the two-day abnormal return is 31.3% for 21 target firms with favorable managerial response. In contrast, the corresponding abnormal return is higher at 36.5% for the 13 targets with unfriendly managerial reaction. For cash investments, the two-day abnormal return is 0.6% for the 14 observations with favorable managerial reaction, compared to the 4.9% for the 10 cases with unfriendly managerial response. The difference is statistically significant with a t-statistic equal to 1.7. For other subsamples, the proportion with unfriendly managerial reaction is relatively small. Statistics on these subsamples are not reported.

Multivariate Analysis. Since several other factors may also affect abnormal return, examination of the effect of managerial reaction requires incorporation of these factors. The multivariate analysis incorporates the influence of payment method, type of acquisition, terms and bidder's identity. Over the entire sample, abnormal returns from multivariate analysis are 21.1% for the unfriendly group, 15.4% for the favorable group, and 18.5% for the neutral group. The t-statistic for the difference between the favorable group and the unfriendly group is 1.73, indicating that managerial resistance is associated with higher abnormal returns over the announcement period (at the 8.5% significance level).

In summary, managerial resistance is associated with a favorable market response from multivariate analysis. Since the results are based on the average figures of several groups, they may not apply to individual observations. The evidence does appear, however, to favor the shareholder welfare hypothesis which predicts a favorable market response when management resists an acquisition offer. That is, the market's view of resistance is a positive one.

Pre-Announcement Period Abnormal Return. Consistent with the previous literature, abnormal returns over the pre-announcement period are significantly different from zero. Table 18A presents time series of abnormal returns. These are summarized below for different intervals.

CAR	Neutral	Favorable	Unfriendly
CAR(-30,-2)	9.4%	8.0%	9.2%
CAR(-40,-2)	9.2%	8.6%	8.6%
CAR(-50,-2)	9.7%	9.7%	7.8%
CAR(-50,-2)*	9.9%	9.5%	7.7%

*Results from multivariate analysis. Others are univariate results--that is, the other results do not control for the various dimensions of announcements.

The comparison between the favorable and the unfriendly groups does not indicate a significant difference over the pre-announcement period. For a longer period from day -50 through day -2, the favorable group is associated with a slightly higher abnormal return than the unfriendly group. For a shorter period near the announcement date from day -30 through day -2, managerial resistance is related to a slightly higher abnormal return. These differences are generally statistically indistinguishable. Also, multivariate analysis does not alter the results.

Table 18A, however, reveals that the cumulative abnormal return for the unfriendly group is below 1% over the pre-announcement period until day -5. In contrast, the corresponding abnormal return for the favorable group is above 1% from day -40. (The t-statistic for the CAR of the favorable group is 1.55 on day -40 and above 2.0 from day -20 through day -2. In contrast, the corresponding t-statistic is below 1.5 for the unfriendly group from day -40 through day -3.) The evidence

appears consistent with the notion that favorable managerial response involves earlier insider tradings (or information leakage) than does the unfriendly reaction over the pre-announcement period. If insiders in the favorable group anticipate a successful acquisition in the near future, they may have more incentive to engage in trading of target shares over the early pre-announcement period.

Post-Announcement Period Abnormal Return.

Post-announcement abnormal returns are detailed in Table 18A and summarized below for different intervals.

	All Firms	Neutral	Favorable	Unfriendly
CAR(1,20)	-.007	-.004	-.011	-.003
CAR(1,30)	-.014	-.008	-.016	-.033
CAR(1,40)	-.017	-.012	-.012	-.056
CAR(1,50)	-.018	-.011	-.014	-.055
CAR(1,50)*	-.018	-.009	-.020	-.044

*Results from multivariate analysis. Others are univariate results--that is, the other results do not control for the various dimensions of announcements.

The abnormal returns are generally insignificantly different from zero over the post-announcement period, although the abnormal returns do appear to be slightly negative. On an individual firm basis, 56% of the entire sample records negative abnormal returns for this period.

For the unfriendly group, the cumulative abnormal return is insignificantly different from zero during the period from day

1 through day 20 (t-statistic less than 1.0). For a longer period, from day 1 through day 50, around 10% of the unfriendly targets are excluded from the computation of abnormal returns due to missing data. These excluded firms may involve successful offers. For the remaining targets in the unfriendly group, the abnormal return over the longer period from day 1 through day 50 is -5.5% with a t-statistic equal to -2.05. This higher abnormal loss is consistent with Baron's [1983] analysis. Over a longer period, the market may interpret managerial resistance as a preference for corporate control rather than as an action to maximize shareholder welfare. This interpretation may lead to a decline in the target firms' stock price.

Payment Method and Relevant Hypotheses

The market's reaction is examined for four groups of payment related announcements: cash, stock, mixed payment, and announcements not revealing the form of payment. The effects of payment method are examined through univariate, two-way and multivariate analysis by focusing on the announcement period abnormal returns. The implication for the tax, regulation and information hypotheses is discussed. The pre- and post-announcement period abnormal returns are also briefly discussed.

Univariate Analysis. Tables 19A and 19B and Figure 3 present abnormal returns for the four groups. The abnormal returns are all significantly different from zero over the two-day announcement periods: 18.3% for the cash offers, 14.4%

Table 19A. Abnormal Returns by Payment Method (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Cash		Stock		Mixed	
Day	AR	CAR	AR	CAR	AR	CAR	AR	CAR
-50	.001	.001	.003	.003	.007	.007	-.002	-.002
-40	-.005	-.003	.002	.004	-.004	.018	-.005	.009
-30	.003	-.005	-.001	.002	-.002	.021	-.001	.021
-20	.002	.009	.004	.023	-.007	.026	-.001	.041
-19	-.003	.006	.000	.023	.000	.026	-.001	.040
-18	.004	.010	.003	.026	-.000	.026	.001	.041
-17	-.002	.008	-.000	.025	.003	.029	.002	.043
-16	.001	.009	.001	.026	.000	.029	.001	.044
-15	-.002	.007	.002	.028	.002	.031	-.005	.039
-14	.001	.008	.000	.028	-.003	.028	-.005	.034
-13	.001	.008	.000	.028	-.006	.022	.000	.034
-12	.004	.012	.003	.031	.001	.022	.009	.043
-11	.002	.014	.001	.032	.002	.024	.005	.048
-10	-.004	.010	.004	.036	-.002	.021	-.002	.046
-9	.000	.011	.004	.040	-.008	.013	.003	.049
-8	.006	.016	.004	.044	.006	.019	.001	.051
-7	.000	.017	.007	.051	.009	.027	-.000	.050
-6	-.000	.017	.007	.058	.007	.034	.009	.059
-5	.004	.021	.004	.062	.006	.040	.014	.073
-4	.001	.022	.011	.072	.005	.045	.004	.076
-3	.008	.030	.010	.083	.007	.052	.008	.085
-2	.027	.057	.022	.104	.013	.065	.035	.120
-1	.076	.076	.105	.105	.119	.119	.163	.163
0	.055	.132	.077	.183	.025	.144	.064	.227
1	-.001	-.001	-.001	-.001	-.001	-.001	-.003	-.003
2	-.006	-.006	-.000	-.002	-.004	-.005	-.002	-.005
3	-.013	-.020	-.001	-.003	.001	-.004	-.005	-.010
4	.005	-.014	-.001	-.004	-.005	-.009	-.001	-.011
5	-.003	-.018	-.001	-.004	-.002	-.011	.005	-.006
6	.004	-.013	-.000	-.005	-.006	-.017	-.003	-.009
7	-.002	-.016	.002	-.003	.002	-.015	-.005	-.014
8	.003	-.012	-.002	-.005	-.004	-.020	-.002	-.015
9	.006	-.006	.001	-.004	.003	-.017	.000	-.015
10	.011	.004	-.002	-.006	.012	-.005	-.000	-.015
11	-.001	.003	.002	-.004	-.005	-.009	-.001	-.017
12	-.000	.003	-.001	-.005	-.001	-.011	-.005	-.021
13	-.005	-.002	.003	-.002	-.005	-.015	.010	-.012
14	-.001	-.003	-.001	-.003	.001	-.014	.000	-.011
15	-.008	-.011	.001	-.002	-.003	-.017	-.004	-.015
16	.008	-.003	.003	.000	.004	-.014	.001	-.014
17	-.005	-.009	.000	.001	-.000	-.014	-.003	-.017
18	-.001	-.010	-.001	-.000	-.014	-.028	.005	-.012
19	-.001	-.011	-.001	-.002	.004	-.024	-.002	-.014
20	-.005	-.015	.001	-.001	.006	-.018	.001	-.014
30	-.003	-.007	-.000	-.015	.008	-.003	.003	-.028
40	-.003	-.001	-.003	-.021	-.003	-.015	-.003	-.020
50	-.001	-.011	-.000	-.019	.006	-.017	.012	-.018

Table 19B. T-Statistics for Abnormal Returns by Payment Method (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Cash		Stock		Mixed	
Day	T(AR)	T(CAR)	T(AR)	T(CAR)	T(AR)	T(CAR)	T(AR)	T(CAR)
-50	.308	.308	1.456	1.456	1.647	1.647	-.492	-.492
-40	-1.324	-.286	.976	.597	-.876	1.280	-1.107	.631
-30	.752	-.278	-.438	.232	-.420	1.046	-.239	1.065
-20	.553	.458	2.117	2.289	-1.721	1.083	-.262	1.734
-19	-.844	.302	.089	2.269	.041	1.073	-.254	1.662
-18	1.131	.494	1.457	2.488	-.031	1.052	.295	1.688
-17	-.538	.395	-.133	2.428	.639	1.146	.422	1.735
-16	.187	.421	.452	2.470	.002	1.129	.152	1.736
-15	-.633	.309	.942	2.592	.407	1.182	-1.183	1.515
-14	.261	.348	.018	2.560	-.704	1.050	-1.143	1.306
-13	.179	.372	.116	2.545	-1.417	.806	.015	1.291
-12	1.078	.540	1.449	2.744	.122	.815	2.122	1.614
-11	.589	.627	.709	2.821	.415	.870	1.239	1.790
-10	-1.154	.439	2.149	3.122	-.557	.773	-.446	1.698
-9	.113	.451	2.086	3.407	-1.961	.461	.698	1.786
-8	1.627	.694	2.394	3.732	1.317	.656	.286	1.808
-7	.063	.695	3.778	4.259	2.025	.954	-.002	1.787
-6	-.011	.686	3.872	4.789	1.501	1.167	2.037	2.071
-5	1.171	.851	2.261	5.070	1.439	1.367	3.195	2.519
-4	.381	.897	5.918	5.879	1.233	1.532	.841	2.615
-3	2.092	1.190	5.782	6.652	1.525	1.736	1.968	2.872
-2	7.474	2.246	11.998	8.297	2.964	2.141	8.187	4.012
-1	21.062	21.062	58.683	58.683	27.525	27.525	38.337	38.337
0	15.264	25.686	43.109	71.978	5.829	23.585	15.028	37.735
1	-.170	-.170	-.788	-.788	-.276	-.276	-.783	-.783
2	-1.589	-1.244	-.251	-.735	-.894	-.828	-.452	-.874
3	-3.674	-3.137	-.447	-.858	.161	-.583	-1.158	-1.382
4	1.493	-1.970	-.549	-1.017	-1.081	-1.045	-.231	-1.312
5	-.928	-2.177	-.426	-1.101	-.546	-1.179	1.185	-.644
6	1.179	-1.506	-.077	-1.036	-1.290	-1.603	-.608	-.836
7	-.657	-1.643	1.077	-.552	.361	-1.348	-1.136	-1.203
8	.901	-1.218	-1.228	-.950	-.956	-1.599	-.421	-1.274
9	1.689	-.585	.561	-.709	.639	-1.295	.037	-1.189
10	2.960	.385	-1.200	-1.052	2.770	-.352	-.043	-1.142
11	-.403	.245	1.192	-.644	-1.059	-.655	-.328	-1.187
12	-.089	.209	-.691	-.816	-.268	-.704	-1.073	-1.447
13	-1.374	-.182	1.506	-.366	-1.041	-.966	2.305	-.750
14	-.204	-.230	-.592	-.511	.277	-.856	.044	-.711
15	-2.196	-.790	.601	-.338	-.781	-1.029	-.903	-.921
16	2.130	-.231	1.476	.041	.861	-.781	.313	-.813
17	-1.451	-.577	.141	.074	-.103	-.783	-.763	-.974
18	-.302	-.632	-.489	-.043	-3.272	-1.532	1.179	-.668
19	-.239	-.670	-.798	-.226	1.035	-1.254	-.551	-.777
20	-1.326	-.950	.451	-.118	1.376	-.914	.130	-.728
30	-.779	-.331	-.221	-1.543	1.918	-.146	.672	-1.218
40	-.847	-.045	-1.751	-1.874	-.773	-.560	-.631	-.724
50	-.216	-.445	-.095	-1.476	1.255	-.567	2.712	-.608

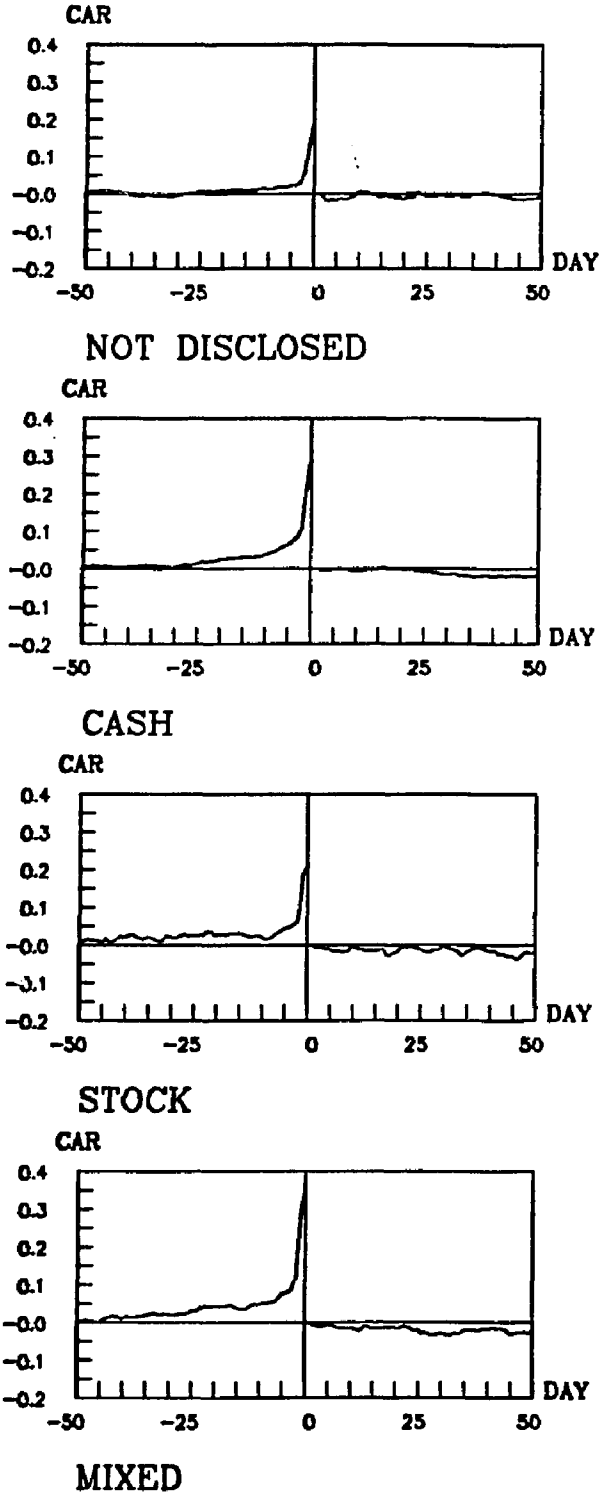

Figure 3. Cumulative Abnormal Returns by Payment Method
(Abnormal Returns are cumulated seperately
for the Post-Announcement Period)

for stock offers, 22.7% for mixed payments, and 13.2% for announcements not revealing the form of payment. Cash offers appear to have higher abnormal returns than stock offers although the t-statistic for the difference is only equal to 1.22 (based on the univariate analysis).

Two-Way Analysis. To further examine the effect of payment method, the abnormal returns are examined over several subsamples. For the merger subsample, abnormal return is 33.3% for 33 cash mergers, 14.4% for 32 stock mergers, 24.8% for 23 mixed payment mergers, and 11.6% for 13 merger announcements not revealing payment methods. Cash mergers are associated with higher abnormal returns than are stock mergers with a t-staistic of 3.32 (significant at 0.2% level).

The findings of higher abnormal returns for cash mergers as opposed to stock mergers is consistent with the work of Gordon and Yagil [1981]. They report abnormal returns (over the period from the 8 months before the merger through the merger month) of 31.9% for target shareholders of cash mergers, compared to 18.7% from stock mergers. Similarly, Wansley et al [1983] find abnormal returns of 33.5% for cash mergers versus 17.5% for stock mergers over the period from day -40 through day 40. The results of Gordon and Yagil, and Wansley et al, however, are based on completed mergers only and may be subject to ex-post selection bias. Further, Gordon and Yagil examine abnormal returns relative to merger completion dates, which may not fully capture the market's reaction to an initial acquisition announcement.

However, the present evidence on mixed payment mergers differs from that reported by Wansley et al. Mixed payments generally involve cash, stock, and other securities. The present evidence indicates that abnormal returns to mixed payment mergers are almost equal to the average of abnormal returns in cash mergers and stock mergers. This result may be due to the hybrid nature of mixed payments (i.e., involving cash, stock, etc...). In contrast, Wansley et al report an abnormal return of 11.8% for mixed payment mergers, which is lower than the corresponding figures in both cash mergers (33.5%) and stock mergers (17.5%). This difference may be due to sampling: Wansley et al's mixed payment mergers contain 12 observations, which is half the size relative to this dissertation.

Multivariate Analysis. Results from multivariate analysis indicate that the abnormal returns are 21.5% for cash offers, 15.7% for mixed payment offers, 5.5% for stock offers, and 12.5% for offers not revealing payment methods. Thus, abnormal returns are significantly higher for cash offers than for stock offers. The t-statistic for this difference is 4.188 (significant at .01%) from the multivariate analysis. The multivariate analysis reinforces the picture that the cash offers are associated with higher abnormal returns than are stock offers and other groups.

The evidence is consistent with the several hypotheses including the tax hypothesis, regulation hypothesis, and information signalling hypothesis. (See previous chapters for details on these hypotheses.) Since these hypotheses predict

higher abnormal returns for cash offers rather than for stock offers, we should first examine the adequacy of each hypothesis seperately.

Tax Hypothesis. According to the tax hypothesis, a premium must be added to cash offers in order to compensate target shareholders for the payment of capital gains taxes. The tax-induced premium should be high enough to make a marginal investor (target shareholder) indifferent to the tax inequalities between cash offers and stock offers. Under simplified assumptions, the premium would be as follows: (See Appendix 2 for detail.)

$$PREMIUM = (T/(1-T))(STOCKGAIN)[1- (1/(1+R)^{**}H)],$$

where

PREMIUM = extra premium for cash offers,

STOCKGAIN = abnormal returns in stock offers,

T = marginal tax rate of the investor,

H = holding period for stock offer, and

R = annual opportunity cost.

Assuming a tax rate of 50%, an opportunity cost of 20% per year, one year holding period, and abnormal returns of 20% for stock offers, the formula estimates a taxes-induced premium for cash offers at 3.3%. The empirical evidence on the difference between cash offers and stock offers, however, is much higher than the figure predicted under the tax hypothesis. Over the merger

subsample in this dissertation, the two-day abnormal return in cash mergers exceeds that in stock mergers by 18.9% (the difference is 22.4% over the period from day -50 through day 0). For the overall sample, the difference from multivariate analysis is 16.0%. Previous work also reports a larger abnormal return in cash offers than in stock offers. Wansley et al report a difference of 16.7% between cash mergers and stock mergers. Gordon and Yagil find a difference of 13.2% between cash mergers and stock mergers. The overall empirical evidence suggests that abnormal returns in cash offers exceed that in stock offers by a large margin, ranging from 13% to 19%. Thus, the tax hypothesis seems to explain only a small portion of difference between cash offers and stock offers.

Regulation Hypothesis. According to the regulation hypothesis, bidding firms can consummate acquisitions faster in cash offers than in stock offers. Wansley et al[1983] point out that a stock offer requires a registration statement and approval from the Securities and Exchange Commission, and generally takes more time than a cash offer. Wansley et al suggest that the higher abnormal return in cash offers may be associated with hostile acquisitions that employ cash as a payment method to gain the benefit of speed.

If the premium in cash offers mainly reflects hostile acquisitions, controlling the effect of managerial reaction should reduce the difference between cash offers and stock offers. In order to isolate the effect of managerial reaction,

the effect of payment methods is examined for several subsamples with different managerial reactions. For the subsample of favorable managerial reaction, the abnormal return is 32.6% for 25 cash mergers, compared to 10.2% for 21 stock mergers. Thus, the difference in abnormal returns between cash offers and stock offers is large at 22.4%, even after isolating the effect of managerial resistance. Further, the results from multivariate analysis indicates much higher abnormal return for cash offers (21.5%) than for stock offers (5.5%). Since controlling the effect of managerial reaction does not seem to reduce the difference in abnormal returns between cash offers and stock offers, the regulation hypothesis does not seem to provide an adequate explanation of the empirical finding.

Information Hypothesis. According to the information signalling hypothesis, payment methods are used to send a signal to the market concerning the value of bidding firms. In a capital market where asymmetric information exists between managers and investors, managers of a bidding firm would choose to pay in cash when they believe the stock of their firm is undervalued. Alternatively, bidding firms would choose to pay in stock when managers believe the stock is overpriced.

Walkling and Schwartz[1984] report that bidding firms choosing to pay in cash have significantly lower market-to-book value ratios and price-earnings ratios. They suggest that the evidence is consistent with the information signalling hypothesis. In addition, Wansley et al[1982] report a more

favorable market reaction to security prices of bidders involved in cash offers than those in stock offers. Over the period from 50 trading days before through 40 trading days after the acquisition announcement, the abnormal return for bidders involved in cash offers exceeds that in stock offers by 4.3%.[8] The empirical evidence of higher abnormal returns in cash offers is consistent with the information signalling hypothesis. Unfortunately, it cannot be easily determined whether this hypothesis can fully explain the observed difference between cash offers and stock offers.

Pre- and Post-Announcement Periods Abnormal Returns. Cash offers relate to higher abnormal returns over the pre-announcement period than do stock offers. Over the period from day -50 through day -2, the abnormal return is 10.4% for cash offers, compared to 6.5% for stock offers (based on univariate analysis). This pattern is consistent with that reported by Wansley, Lane and Yang.[9]

Over the post-announcement period, both cash offers and stock offers have slightly negative abnormal returns. For the 50 trading days after the announcement date, the abnormal return is

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[8] Another factor worthy of consideration is that for target firms involved in cash offers, the value of the acquisition offer can be determined (in cash) without ambuguity. In a stock offer, target shareholders may face uncertainty concerning the true value of the bidding securities they are offered.

[9] Wansley et al[1983, p. 21] present a plot of abnormal returns for cash offers and stock offers. Over the period from day -40 through day -2, the abnormal return appears to be 18% for cash offers, compared to 9% for stock offers.

-1.9% for cash offers and -1.7% for stock offers. These abnormal returns are insignificantly different from zero (t-statistics less than 1.5).

Type of Offer: The Truncation Hypothesis

The truncation hypothesis asserts that tender offers involve more hostile reaction from target managements than do mergers. Target management resistance may induce bidding firms to forego what were originally marginally profitable acquisitions. According to this hypothesis, measured abnormal returns for tender offers would be higher than those for mergers since low valued tender offers would be foregone while low valued mergers would still be attempted. Mergers require approval from target management while tender offers do not. For this reason, tender offers provide a major alternative for bidding firms engaging in hostile acquisitions. A bidder generally incurs higher expected costs in a hostile acquisition, which induces bidding firms to cancel what were originally marginally profitable acquisitions. Jensen and Ruback suggest that this truncation will result in higher measured abnormal returns for tender offers than for mergers.[10] This hypothesis is tested by examining the market's reaction to the announcements of tender offers and mergers. Univariate, two-way and multivariate analysis is performed focusing on the announcement period

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[10] This hypothesis suggests more friendly acquisitions in mergers than in tender offers. The data in this dissertation is consistent with this prediction: 64% of mergers are friendly, compared to only 37% of the tender offers.

abnormal returns. Pre- and post-announcement abnormal returns are briefly discussed based on results from univariate analysis.

Univariate Analysis. Tables 20A and 20B and Figure 4 present time series of abnormal returns for several types of acquisition offers. Over the two-day announcement period, the abnormal return is 22.6% for mergers and 27.5% for tender offers. The t-statistic for the difference is equal to 1.58, which is significant at the 20% level.

This finding is consistent with previous research. In their survey paper, Jensen and Ruback[1983] report abnormal returns of 30.9% for targets involved in tender offers, compared to 16.3% for those involved in mergers. The figures are estimated from several studies. However, the abnormal returns in these studies are computed over different periods, ranging from one to two months around the announcement dates. In this dissertation, the abnormal return is 31.5% for mergers and 36.6% for tender offers computed over the period from day -50 through day 0.

These abnormal returns do not incorporate the effects of several omitted factors such as managerial reaction, payment method, and so forth.

Two-Way Analysis. If the truncation hypothesis is valid, controlling the influence of managerial reaction should reduce the observed difference between mergers and tender offers. To control the influence of managerial reaction, the market's reaction to mergers and tender offers is examined over subsamples

Table 20A. Abnormal Returns by Type of Acquisition (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Tender Offer		Merger		Investment	
Day	AR	CAR	AR	CAR	AR	CAR	AR	CAR
-50	-.003	-.003	.003	.003	.002	.002	.004	.004
-40	-.002	.008	.002	-.007	.000	.008	-.003	.010
-30	.000	-.010	-.001	-.012	-.002	.018	.002	.011
-20	.011	.017	.002	.006	-.002	.031	.003	.032
-19	.003	.020	.002	.008	-.001	.030	-.003	.029
-18	.004	.024	.001	.009	.001	.031	.004	.033
-17	.001	.026	.001	.010	-.001	.031	-.000	.033
-16	.003	.029	-.001	.009	-.000	.031	.002	.035
-15	.005	.034	-.001	.008	-.001	.030	.001	.036
-14	-.002	.033	.002	.010	-.002	.027	-.001	.035
-13	-.005	.027	.002	.012	.000	.028	-.002	.033
-12	.010	.037	.001	.014	.003	.031	.004	.036
-11	.010	.047	-.001	.012	.002	.033	.002	.038
-10	-.004	.043	.003	.015	-.002	.031	.005	.043
-9	-.005	.039	.002	.017	-.001	.030	.007	.050
-8	-.005	.034	.005	.022	.006	.036	.004	.054
-7	-.001	.032	.005	.027	.006	.042	.007	.062
-6	.003	.035	.001	.028	.004	.046	.015	.076
-5	.004	.040	.010	.038	.007	.053	-.000	.076
-4	.004	.043	.007	.045	.009	.062	.008	.085
-3	-.000	.043	.017	.062	.009	.070	.007	.091
-2	.054	.098	.029	.091	.019	.089	.012	.104
-1	.109	.109	.154	.154	.145	.145	.029	.029
0	.058	.167	.122	.275	.082	.226	.002	.031
1	.002	.002	-.000	-.000	-.002	-.002	-.003	-.003
2	.005	.007	-.004	-.005	-.005	-.007	.001	-.001
3	-.024	-.017	.001	-.004	.001	-.006	-.004	-.006
4	.009	-.008	.003	-.001	-.005	-.011	-.002	-.007
5	.005	-.004	-.002	-.002	.002	-.009	-.004	-.012
6	-.001	-.005	-.002	-.004	-.003	-.012	.004	-.007
7	-.005	-.010	.000	-.004	.001	-.011	.002	-.005
8	-.000	-.011	.000	-.004	-.002	-.013	-.003	-.008
9	.006	-.005	.005	.001	.001	-.012	-.000	-.009
10	.011	.007	.001	.002	.004	-.008	-.004	-.013
11	-.002	.004	.002	.003	-.003	-.011	.004	-.009
12	.002	.006	-.005	-.002	-.002	-.012	.001	-.008
13	-.000	.006	.004	.002	-.001	-.013	.004	-.004
14	.002	.008	.004	.006	-.001	-.015	-.005	-.009
15	.001	.009	-.008	-.002	.000	-.014	.002	-.008
16	.002	.011	.007	.005	.002	-.012	.002	-.006
17	-.002	.010	-.000	.004	-.003	-.015	.001	-.005
18	-.000	.009	-.002	.002	-.002	-.018	-.001	-.006
19	.009	.018	-.004	-.002	-.000	-.018	-.002	-.008
20	-.001	.016	.004	.002	-.000	-.018	-.001	-.008
30	-.005	-.032	-.001	-.014	.002	-.016	.002	-.006
40	-.009	-.031	-.003	-.011	-.003	-.015	-.001	-.022
50	.006	-.046	-.001	-.024	.003	-.007	.002	-.018

Table 20B. T-Statistics for Tbnormal Returns by Type of Acquisition (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Tender Offer		Merger		Investment	
Day	T(AR)	T(CAR)	T(AR)	T(CAR)	T(AR)	T(CAR)	T(AR)	T(CAR)
-50	-.527	-.527	.979	.979	.960	.960	1.381	1.381
-40	-.319	.464	.615	-.760	.010	1.052	-1.213	1.068
-30	.029	-.431	-.527	-1.021	-.835	1.694	.812	.845
-20	2.286	.593	.689	.424	-.967	2.339	1.043	2.124
-19	.687	.705	.737	.547	-.388	2.234	-1.273	1.866
-18	.859	.844	.202	.574	.584	2.301	1.644	2.124
-17	.228	.871	.452	.643	-.279	2.219	-.110	2.073
-16	.621	.963	-.199	.600	-.077	2.174	.709	2.163
-15	1.079	1.129	-.522	.505	-.383	2.080	.432	2.205
-14	-.312	1.063	.837	.636	-.947	1.896	-.518	2.090
-13	-1.063	.876	.877	.770	.196	1.903	-.831	1.928
-12	2.036	1.191	.530	.845	1.191	2.069	1.282	2.108
-11	1.895	1.476	-.513	.753	.897	2.185	.768	2.203
-10	-.744	1.341	1.066	.910	-.646	2.057	1.761	2.451
-9	-.898	1.187	.861	1.032	-.476	1.959	2.593	2.822
-8	-.988	1.022	2.011	1.327	2.606	2.334	1.623	3.036
-7	-.247	.973	1.867	1.593	2.345	2.661	2.582	3.391
-6	.525	1.041	.275	1.616	1.532	2.859	5.461	4.167
-5	.890	1.160	3.764	2.153	3.138	3.290	-.032	4.117
-4	.770	1.260	2.882	2.551	3.613	3.782	3.003	4.511
-3	-.006	1.246	6.426	3.452	3.636	4.267	2.470	4.820
-2	10.763	2.771	11.296	5.030	7.873	5.348	4.496	5.413
-1	21.650	21.650	59.523	59.523	60.796	60.796	10.611	10.611
0	11.538	23.468	47.097	75.392	34.315	67.253	.660	7.970
1	.467	.467	-.172	-.172	-1.014	-1.014	-.999	-.999
2	.982	1.025	-1.645	-1.284	-1.932	-2.083	.478	-.369
3	-4.865	-1.972	.290	-.881	.586	-1.363	-1.639	-1.247
4	1.741	-.837	1.305	-.111	-2.066	-2.213	-.558	-1.359
5	.912	-.341	-.583	-.360	.729	-1.654	-1.615	-1.938
6	-.245	-.411	-.895	-.694	-1.155	-1.981	1.645	-1.098
7	-1.053	-.778	.162	-.581	.244	-1.742	.735	-.739
8	-.096	-.762	.056	-.524	-.763	-1.899	-1.111	-1.084
9	1.250	-.302	1.782	.100	.228	-1.715	-.170	-1.079
10	2.232	.420	.324	.197	1.684	-1.094	-1.434	-1.477
11	-.489	.253	.678	.393	-1.063	-1.364	1.364	-.997
12	.364	.347	-2.049	-.216	-.653	-1.494	.240	-.885
13	-.052	.319	1.453	.196	-.478	-1.568	1.423	-.456
14	.493	.439	1.561	.606	-.543	-1.656	-1.795	-.919
15	.144	.462	-3.180	-.236	.169	-1.557	.582	-.737
16	.435	.556	2.755	.460	1.024	-1.251	.588	-.567
17	-.327	.460	-.188	.401	-1.404	-1.554	.454	-.440
18	-.097	.424	-.853	.189	-1.027	-1.752	-.202	-.475
19	1.705	.804	-1.434	-.148	-.181	-1.747	-.728	-.630
20	-.284	.720	1.380	.170	-.060	-1.716	-.257	-.671
30	-1.093	-1.176	-.204	-.961	.738	-1.264	.885	-.403
40	-1.862	-.979	-.902	-.633	-1.432	-.977	-.432	-1.249
50	1.202	-1.289	-.321	-1.245	1.159	-.400	.628	-.937

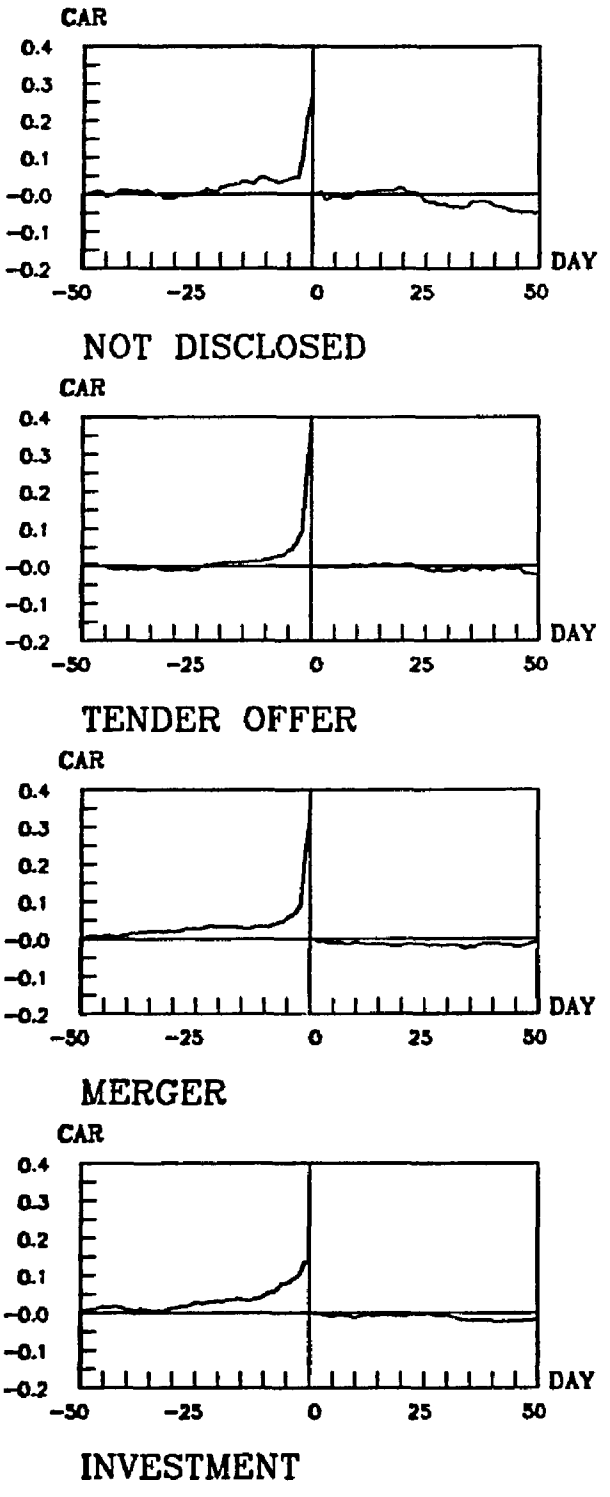

Figure 4. Cumulative Abnormal Returns by Type of Acquisition
(Abnormal Returns are cumulated seperately
for the Post-Announcement Period)

with favorable and unfriendly managerial reaction.

	Tender Offers		Mergers		
	CAR(-1,0)	Size	CAR(-1,0)	Size	Difference
MGT--Favorable	28.3%	27	21.2%	65	7.1%
MGT--Unfriendly	32.3%	18	28.2%	5	4.1%
All Sample	27.5%	74	22.6%	101	4.9%

For the subsample with favorable managerial reaction, the abnormal return over the two-day announcement period is 28.3% for tender offers, compared to 21.2% for mergers. The difference between mergers and tender offers is actually larger in this subsample (7.1%) than in the entire sample (4.9%). For the subsample with unfriendly managerial reaction, the abnormal return is 32.3% for tender offers, versus 28.2% for mergers. For this subsample, the difference between mergers and tender offers is reduced slightly (to 4.1%). Thus, the effect of managerial reaction does not seem to account for the higher abnormal return in tender offers than in mergers.

An alternative explanation for the higher abnormal returns in tender offers is that these abnormal returns are at least partially attributed to the effects of payment method. Manne[1965] suggests that mergers have the advantage of using stock as a payment medium. Stock offers allow taxfree transactions which do not require payment of capital gains taxes

until target shareholders actually sell their holdings. In contrast, tender offers are largely cash transactions and are necessarily ruled as taxable transactions. Manne suggests that target shareholders would be willing to accept a lower bid premuim for mergers because of advantages such as this tax treatment.

To examine whether payment method accounts for the observed higher abnormal return in tender offers, market reaction is examined over subsamples with different payment methods.

	Tender Offers		Mergers		
	CAR(-1,0)	Size	CAR(-1,0)	Size	Difference
Payment--Cash	29.1%	59	33.3%	33	-4.2%
Payment--Stock	N.A.	0	14.4%	32	N.A.
Payment--Mixed	24.0%	8	24.8%	23	-0.8%
All Sample	27.5%	74	22.6%	101	4.9%

For the cash subsample, the announcement period abnormal return is 29.1% for tender offers and 33.3% for mergers. For the mixed-payment subsample, the abnormal return is 24.0% for tender offers and 24.8% for mergers. Thus, these results differ from those obtained over the entire sample. After isolating the effect of payment method, abnormal return is actually higher in mergers than in tender offers for the cash subsample. (For the mixed-payment subsample, the market reacts similarly to mergers

and tender offers.)

The above breakdown indicates that mergers contain 32 pure stock transactions while tender offers do not involve any pure stock transactions. Stock mergers involve much lower abnormal returns (14.4%) than the other categories. These lower abnormal returns in stock mergers reduce the measured abnormal return for the overall merger series. When isolating the effect of payment method, the trend between mergers and tender offers reverses. Thus, the original higher abnormal return observed in tender offers can apparently be explained by the effect of payment method.

Multivariate Analysis. The results from multivariate analysis indicate that abnormal return is 24.4% for tender offers and 27.8% for mergers. (The t-statistic for this difference is 1.08 with significance level at 28% from the multivariate analysis.) The multivariate analysis indicates that, contrary to the prediction of truncation hypothesis, mergers involve slightly higher abnormal returns than do tender offers when interdependence among factors are taken into consideration.[11]

Mergers and Tender Offers: Pre- and Post-Announcement Periods. Over the pre-announcement period from day -50 through day -2, the abnormal return is 9% for both mergers and tender offers. When restricted to cash transactions only, the abnormal return is 10% for both cash mergers and cash tender offers. The market does not seem to react differently between the two types of acquisition during the pre-announcement period.

Over the post-announcement period from day 1 through day 50, the abnormal return is insignificantly different from zero for both mergers and tender offers.

Investment Offers

Tables 20A and 20B presents the time series of abnormal returns for investment offers. Over the pre-announcement period from day -50 through day -2, the abnormal return is 10.4%. This figure is compatible with those for mergers (8.9%) and tender offers (9.1%). Over the two-day announcement period, the abnormal return for investments is 3.1%. Although this figure is much lower than the corresponding figures in mergers and tender offers, the abnormal return is significantly different from zero (t-statistic equal to 7.97). Over the post-announcement period

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[11] This comparison is not explicitly addressed in most past work. Before controlling the effect of payment method, however, Jensen and Ruback report an (announcement month) abnormal return of 16.3% to target firms. Similarly, Weston and Chung suggest that target firms involved in mergers on average earn an abnormal return of around 15%. These two studies are based on surveys of several merger studies. When isolating the effect of payment method, previous work reveals relatively higher abnormal returns to cash mergers. This allows a more direct comparison with tender offers which are largely cash transactions. Gordon and Yagil [1981] report an abnormal return of 31.9% to cash mergers over the period 8 months before the merger month. Wansley et al [1983] report an abnormal return of 33.5% for cash mergers over the period from day -40 through day 40. In contrast, Dodd and Ruback [1977] report a 20.2% abnormal return for cash tender offers in the announcement month. Likewise, Kummer and Hoffmeister [1978] report a 18.7% abnormal return for cash tender offers in the announcement month. These studies suggest that mergers involve higher abnormal returns than tender offers when the comparison is restricted to cash transactions. There are exceptions, however: in several studies, Bradley and his co-authors report abnormal returns greater than 32% for cash tender offers.

from day 1 to day 50, the abnormal return is insignificantly different from zero.

As mentioned earlier, an investment offer may be part of an acquisition program. Alternatively, an investment may be purely for the purpose of attempting to gain from potential price appreciation. The market should react differently to the two types of investments if they become identifiable. To explore this issue, the abnormal returns are examined for two subgroups of investments: (1) the acquired group involves an investment offer for a target firm subsequently acquired in a successful merger or tender offer, and (2) the unacquired group involves in an investment but not subsequently acquired.[12] The acquired group contains 14 cases; the unacquired group involves 66 cases. Abnormal returns for the two groups are shown below.

Investment Offers	CAR(-50,-2)	CAR(-1,0)	CAR(1,50)
Acquired	17.7%	2.8%	4.8%
Unacquired	8.3%	3.1%	-3.3%
Entire Investments	10.4%	3.1%	-1.8%

Over the pre-announcement period, the abnormal return is 17.7% for the acquired group, compared to the 8.3% for the unacquired group. Investments generally involve tradings over the pre-announcement period. The acquired group and the unacquired

[12] Results for a third subgroup of investments where the outcome cannot be clearly classified is not reported here.

group show different price patterns over this period. The difference may relate to the tradings of the investing firms, insiders, (or very sophisticated investors) over this period. These tradings may reveal information concerning the prospect of an investment. Future work on this topic is clearly warranted.

Undisclosed Acquisitions

Tables 20A and 20B presents the time series of abnormal returns on announcements not revealing the types of acquisition in the initial announcement. Although this category of announcements has been ignored in most acquisition research, the abnormal returns over both the pre- and announcement periods are substantial. Over the two-day announcement period, the abnormal return is 16.7% (with a t-statistic equal to 23.5). This abnormal return is less than the corresponding 22.6% for mergers and the 27.5% for tender offers, but still represents a substantial gain for target shareholders. The abnormal return remains stable at 15.7% when multivariate analysis is performed.

Over the pre-announcement period from day -50 to day -2, the abnormal return is 9.8%. During this period, the market reacts similarly among mergers, tender offers, and undisclosed acquisitions. During the post-announcement period from day 1 to day 50, the abnormal return is insignificantly negative. The t-statistic is -1.29 which is compatible with the corresponding -1.25 for tender offers.

Terms of Acquisition

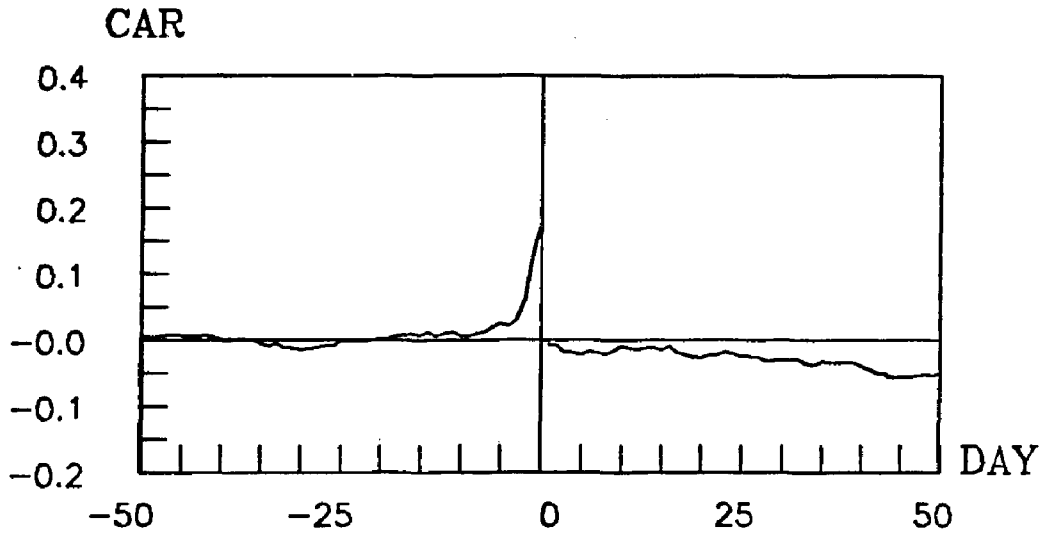
Tables 21A and 21B and Figure 5 present a time series of

Table 21A. Abnormal Returns by Acquisition Terms (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Disclosed	
Day	AR	CAR	AR	CAR
-50	.004	.004	.002	.002
-40	-.004	.001	.000	.006
-30	-.002	-.014	-.000	.011
-20	.002	.001	.002	.029
-19	.000	.002	-.001	.029
-18	.004	.006	.002	.030
-17	.001	.007	-.000	.030
-16	.001	.008	.000	.031
-15	-.001	.007	.001	.031
-14	.004	.011	-.002	.029
-13	-.006	.005	.001	.030
-12	.004	.009	.003	.034
-11	.002	.011	.002	.036
-10	-.005	.005	.003	.039
-9	-.000	.005	.002	.041
-8	.004	.009	.004	.045
-7	.003	.012	.006	.051
-6	.007	.019	.006	.057
-5	.005	.024	.006	.062
-4	-.003	.021	.010	.073
-3	.009	.030	.009	.082
-2	.031	.061	.021	.103
-1	.070	.070	.120	.120
0	.044	.114	.072	.193
1	-.007	-.007	-.000	-.000
2	-.001	-.008	-.002	-.002
3	-.011	-.019	-.001	-.003
4	-.000	-.020	-.000	-.004
5	-.003	-.022	-.000	-.004
6	.005	-.018	-.002	-.005
7	-.002	-.020	.001	-.004
8	-.001	-.021	-.002	-.006
9	.005	-.016	.001	-.005
10	.007	-.009	.000	-.005
11	-.004	-.013	.001	-.003
12	-.002	-.015	-.001	-.005
13	.002	-.012	.002	-.003
14	.001	-.012	-.001	-.004
15	-.004	-.015	-.001	-.005
16	.006	-.009	.003	-.002
17	-.009	-.019	.001	-.001
18	-.003	-.021	-.001	-.002
19	-.005	-.026	.000	-.002
20	-.001	-.028	.001	-.001
30	.001	-.030	.001	-.010
40	-.005	-.039	-.003	-.012
50	.001	-.052	.002	-.009

Table 21B. T-Statistics for Abnormal Returns by Acquisition Terms (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Disclosed	
Day	T(AR)	T(CAR)	T(AR)	T(CAR)
-50	1.063	1.063	1.244	1.244
-40	-1.100	.117	.037	1.101
-30	-.506	-.946	-.039	1.466
-20	.455	.075	1.061	3.336
-19	.092	.090	-.443	3.205
-18	1.176	.293	1.247	3.373
-17	.327	.345	-.101	3.306
-16	.435	.414	.306	3.310
-15	-.359	.348	.373	3.326
-14	1.179	.537	-1.286	3.070
-13	-1.857	.229	.653	3.135
-12	1.335	.440	1.991	3.413
-11	.504	.514	1.309	3.577
-10	-1.643	.251	1.844	3.821
-9	-.013	.246	1.423	3.995
-8	1.081	.408	2.852	4.383
-7	.968	.549	3.571	4.871
-6	1.966	.836	3.768	5.379
-5	1.532	1.053	3.612	5.852
-4	-.864	.915	6.639	6.758
-3	2.830	1.314	5.873	7.535
-2	9.270	2.625	13.451	9.379
-1	21.005	21.005	76.463	76.463
0	13.244	24.217	45.944	86.555
1	-2.035	-2.035	-.103	-.103
2	-.441	-1.751	-1.228	-.941
3	-3.341	-3.358	-.646	-1.141
4	-.092	-2.954	-.283	-1.129
5	-.866	-3.030	-.001	-1.011
6	1.477	-2.163	-1.114	-1.378
7	-.667	-2.255	.651	-1.029
8	-.352	-2.234	-1.031	-1.327
9	1.433	-1.628	.721	-1.011
10	2.152	-.860	.138	-.916
11	-1.125	-1.161	.915	-.597
12	-.532	-1.265	-.928	-.840
13	.636	-1.038	.981	-.535
14	.249	-.933	-.612	-.679
15	-1.137	-1.196	-.520	-.790
16	1.824	-.701	1.701	-.340
17	-2.791	-1.358	.619	-.180
18	-.856	-1.522	-.842	-.373
19	-1.451	-1.815	.142	-.330
20	-.390	-1.856	.613	-.184
30	.310	-1.646	.346	-1.177
40	-1.461	-1.870	-1.674	-1.152
50	.262	-2.211	1.402	-.760



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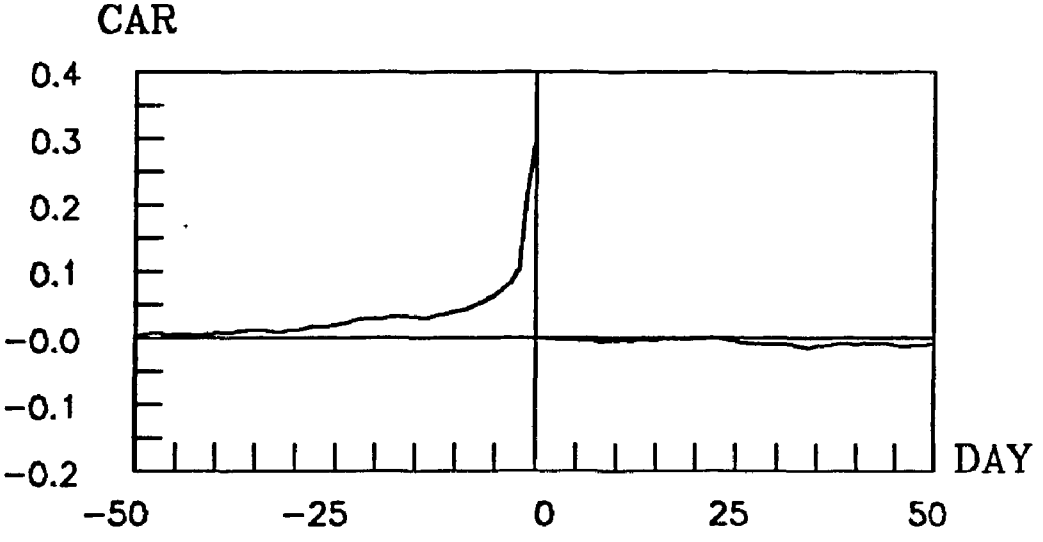

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Figure 5. Cumulative Abnormal Returns by Acquisition Terms (Abnormal Returns are cumulated seperately for the Post-Announcement Period)

abnormal returns on two groups based on the disclosure (or non-disclosure) of acquisition terms in the initial announcement. Over the two-day announcement period, the abnormal return is 11.4% for the undisclosed group, compared to 19.3% for the disclosed group. The t-statistics (Table 21B) indicate that these abnormal returns are significantly different from zero for both groups with the disclosed group having higher abnormal returns than the undisclosed group.

The effect of disclosure and non-disclosure of acquisition terms may be correlated with other factors such as the type of acquisition and the payment method. A breakdown of the two groups by type of acquisition reveals that the undisclosed group contains more investment offers than the disclosed group. (Forty-one percent of the undisclosed group are investment offers, compared to only 26% in the disclosed group.) Investment offers have much lower abnormal returns (3% on average) than those in the entire sample (18%) for the announcement period. This tendency of the undisclosed group to involve more investment offers partially accounts for the lower abnormal return of this group.

In addition, the effect of disclosure of acquisition terms may be correlated with the effects of payment method. Sixty-three percent of the group with undisclosed terms also do not reveal payment method. In contrast, only 3% of the group with disclosed acquisition terms do not reveal payment method. The abnormal return when payment method is not revealed is 13%.

This is lower than the remaining groups in the entire sample including cash offers (18%), stock offers (14%) and mixed payment offers (23%). The association between the non-disclosure of acquisition terms and the non-disclosure of payment method may partially account for the lower abnormal return in the group with undisclosed terms. The abnormal return from multivariate analysis is 16.4% for the group with undisclosed terms, compared to the 17.9% for the disclosed group. The difference is statisticlly insignificant.

A finding of higher abnormal returns for the group with disclosed terms would be consistent with the hypothesis that such disclosure provides more information to the market. If investors are risk-averse, disclosure of more information should reduce the uncertainity concerning the prospect of an acquisition, ceteris paribus. This implies a higher abnormal return when terms of acquisition are disclosed in the initial acquisition announcement. Although the direction of the difference is consistent with the above interpretation, the statistical evidence does not support the hypothesis.

Over the pre-announcement period from day -50 through day -2, the abnormal return is 10.3% for the disclosed group, compared to the 6.1% for the undisclosed group. These abnormal returns remain stable when multivariate analysis is used. This pattern is consistent with the insider trading hypothesis. If the non-disclosure of acquisition terms is consistent with firms in an earlier stage of acquisition negotiation, insiders may have

less reason to trade and vice versa.

Over the 50 trading days after the initial announcement, abnormal returns are negative for both groups. The abnormal return is -.9% (t-statistic equal to -.76) for the disclosed group, compared to -5.2% (t-statistic equal -2.2) for the disclosed group.

Bidder's Identity

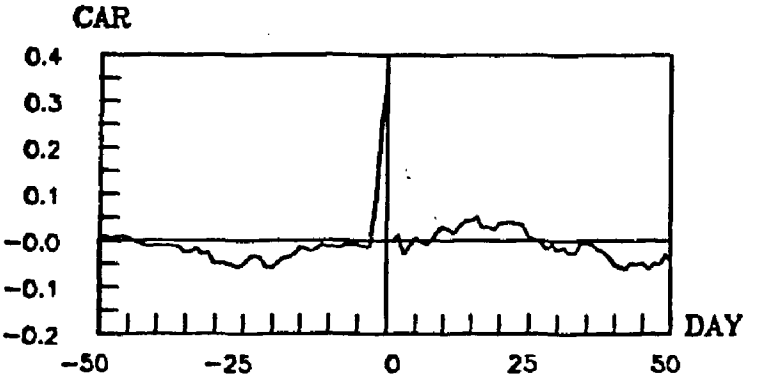
Tables 22A and 22B and Figure 6 present time series of abnormal returns for two groups classified by the disclosure (or non-disclosure) of the bidder's identity. Over the two-day announcement period, the abnormal return is 17.3% for the group with bidder's identity disclosed in the initial acquisition announcement. In contrast, target shareholders in the undisclosed group realize an abnormal return of 27.1%. Both abnormal returns are significantly different from zero. The abnormal return in the undisclosed group appears to be much higher than that in the disclosed group. However, the result is at best only suggestive since only 3% of the initial announcements fail to reveal the bidder's identity. The relatively small sample size in the undisclosed group compared to that in the disclosed group suggests that a case-by-case approach may be more appropriate to examine the abnormal returns. The abnormal returns associated with the 9 undisclosed cases and their counterparts are reported below. These counterparts are selected to match the 9 cases on other dimensions including the type of acquisition, payment method, and managerial reaction.

Table 22A. Abnormal Returns by Bidder's Identity (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Disclosed		Rumored	
Day	AR	CAR	AR	CAR	AR	CAR
-50	.006	.006	.002	.002	-.004	-.004
-40	.002	-.011	-.001	.005	.006	.027
-30	-.021	-.048	.000	.007	-.008	-.022
-20	-.003	-.058	.002	.026	.013	.044
-19	.011	-.047	-.001	.025	-.015	.030
-18	.009	-.039	.002	.027	-.003	.027
-17	.002	-.036	-.000	.027	.007	.034
-16	.008	-.028	.000	.028	.015	.049
-15	.013	-.015	-.000	.027	.013	.062
-14	-.002	-.017	-.001	.027	-.004	.058
-13	-.006	-.023	-.000	.027	-.017	.041
-12	.005	-.018	.003	.030	-.005	.036
-11	.010	-.008	.002	.032	-.016	.020
-10	-.007	-.015	.001	.033	-.002	.017
-9	.002	-.013	.002	.035	-.001	.017
-8	-.003	-.015	.004	.040	.016	.032
-7	.008	-.007	.005	.045	.005	.037
-6	-.002	-.009	.006	.051	.003	.040
-5	.000	-.009	.006	.057	.016	.056
-4	-.003	-.012	.008	.064	.026	.082
-3	-.002	-.015	.010	.074	.000	.082
-2	.085	.070	.021	.095	.033	.115
-1	.171	.171	.109	.109	.038	.038
0	.101	.271	.064	.173	.180	.217
1	-.003	-.003	-.002	-.002	.022	.022
2	.014	.011	-.002	-.004	.006	.028
3	-.040	-.029	-.002	-.006	-.008	.020
4	.019	-.010	-.001	-.007	-.009	.011
5	.015	.004	-.001	-.008	.018	.029
6	-.007	-.002	-.000	-.008	.006	.035
7	-.006	-.009	.001	-.008	-.015	.020
8	.013	.004	-.002	-.010	.001	.021
9	.015	.019	.002	-.008	-.011	.010
10	.011	.030	.001	-.007	.004	.014
11	-.006	.023	.000	-.006	.013	.028
12	-.008	.015	-.001	-.008	.015	.043
13	.016	.032	.001	-.007	-.017	.026
14	.009	.041	-.001	-.007	-.016	.010
15	.001	.042	-.001	-.009	-.017	-.007
16	.008	.050	.003	-.005	-.006	-.013
17	-.023	.028	-.000	-.005	-.022	-.034
18	.002	.030	-.002	-.007	.007	-.027
19	-.006	.023	-.000	-.008	-.013	-.040
20	.013	.036	-.000	-.008	.012	-.028
30	-.014	-.021	.001	-.014	.027	-.019
40	-.015	-.051	-.003	-.016	.002	-.016
50	-.013	-.043	.002	-.017	.007	-.001

Table 22B. T-Statistics for Abnormal Returns by Bidder's Identity (Abnormal Returns Are Cumulated Separately for the Pre-, Post-, and Announcement Periods.)

	Undisclosed		Disclosed		Rumored	
Day	T(AR)	T(CAR)	T(AR)	T(CAR)	T(AR)	T(CAR)
-50	.638	.638	1.538	1.538	-.383	-.383
-40	.222	-.350	-.602	1.061	.605	.764
-30	-2.283	-1.118	.259	1.127	-.750	-.448
-20	-.348	-1.121	1.155	3.216	1.211	.751
-19	1.193	-.892	-.495	3.078	-1.385	.495
-18	.926	-.718	1.524	3.296	-.244	.445
-17	.259	-.663	-.038	3.241	.654	.550
-16	.847	-.510	.198	3.228	1.410	.781
-15	1.387	-.272	-.228	3.145	1.191	.968
-14	-.234	-.306	-.502	3.019	-.334	.900
-13	-.598	-.399	-.069	2.968	-1.611	.627
-12	.497	-.315	2.379	3.311	-.462	.545
-11	1.079	-.140	1.319	3.478	-1.527	.296
-10	-.716	-.250	1.022	3.595	-.231	.257
-9	.262	-.207	1.223	3.740	-.051	.246
-8	-.296	-.249	3.043	4.161	1.465	.466
-7	.874	-.115	3.468	4.636	.450	.529
-6	-.253	-.151	4.390	5.238	.257	.561
-5	.004	-.149	3.879	5.753	1.538	.782
-4	-.320	-.194	5.423	6.483	2.454	1.131
-3	-.257	-.229	6.729	7.386	.009	1.121
-2	9.111	1.075	14.483	9.379	3.110	1.554
-1	18.227	18.227	74.993	74.993	3.570	3.570
0	10.759	20.496	44.227	84.302	16.939	14.502
1	-.363	-.363	-1.180	-1.180	2.068	2.068
2	1.489	.796	-1.680	-2.022	.553	1.854
3	-4.259	-1.809	-1.263	-2.380	-.731	1.091
4	2.029	-.552	-.660	-2.391	-.864	.513
5	1.568	.207	-.892	-2.537	1.681	1.211
6	-.729	-.108	-.171	-2.386	.589	1.346
7	-.656	-.348	.509	-2.017	-1.404	.715
8	1.341	.148	-1.394	-2.379	.118	.711
9	1.572	.664	1.106	-1.874	-1.083	.309
10	1.176	1.001	.889	-1.497	.405	.421
11	-.658	.756	.317	-1.331	1.269	.784
12	-.873	.472	-1.028	-1.571	1.450	1.169
13	1.758	.941	.950	-1.246	-1.595	.681
14	.977	1.168	-.518	-1.339	-1.505	.254
15	.144	1.165	-.923	-1.532	-1.615	-.171
16	.862	1.344	2.284	-.912	-.555	-.304
17	-2.410	.719	-.125	-.916	-2.033	-.788
18	.205	.747	-1.274	-1.190	.679	-.606
19	-.679	.571	-.339	-1.236	-1.184	-.861
20	1.373	.864	-.020	-1.209	1.146	-.583
30	-1.547	-.411	.590	-1.749	2.544	-.321
40	-1.615	-.864	-1.898	-1.745	.228	-.236
50	-1.336	-.647	1.598	-1.632	.704	-.007



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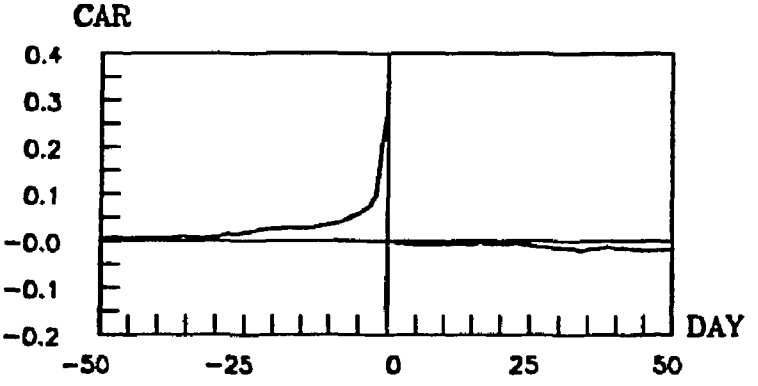

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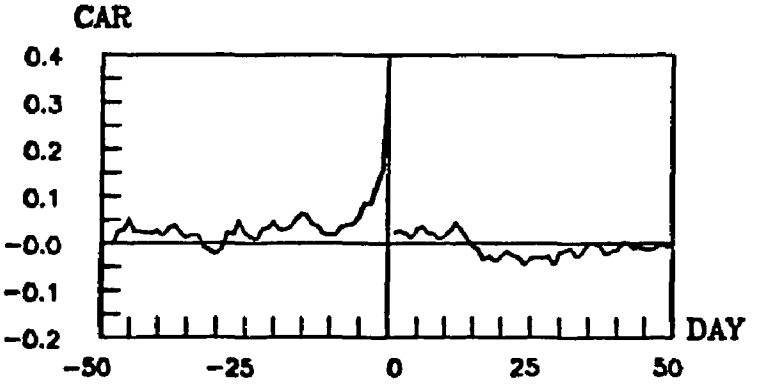

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Figure 6. Cumulative Abnormal Returns by Bidder's Identity
(Abnormal Returns are cumulated seperately
for the Post-Announcement Period)

Type of Acquisition	Payment Method	Managerial Reaction	Bidder's Identity				
			Undisclosed		Disclosed		
			CAR	Size	CAR	Size	Change
Undisclosed	Undisclosed	Undisclosed	40.2%	1	13.5%	9	26.7%
Undisclosed	Undisclosed	Favorable	18.5%	1	N.A.	0	N.A.
Undisclosed	Undisclosed	Unfriendly	13.1%	1	11.1%	1	2.0%
Undisclosed	Cash	Undisclosed	11.8%	1	28.2%	2	-16.4%
Undisclosed	Mixed	Undisclosed	37.1%	1	10.7%	2	26.4%
Tender Offer	Cash	Undisclosed	44.6%	2	21.5%	23	23.1%
Tender Offer	Cash	Favorable	25.1%	1	31.7%	20	-6.6%
Investment	Cash	Undisclosed	9.2%	1	3.1%	48	6.1%

From the above breakdown, the non-disclosure of the bidder's identity relate to higher abnormal return than their counterparts in most cases.

Since the size of the undisclosed group is small, the results should be interpreted with care. Further information is needed before a stronger statement can be made. The results of substantial difference between the disclosed and the undisclosed groups suggest a need for further research.

Over the pre-announcement period from day -50 to day -2, the abnormal return is 7.0% for the undisclosed group, compared to the 9.5% for the disclosed group. For the undisclosed group, the positive abnormal return is largely contributed by the price adjustment on day -2. In contrast, the cumulative abnormal returns remain positive over the pre-announcement period for the disclosed group. The undisclosed group appears to have slightly higher abnormal return than the disclosed group. The t-statistic of the difference is 0.66, which is insignificantly different

from zero.

Over the post-announcement period of the 50 trading days after the initial announcement, the abnormal returns are slightly negative for the two groups. The t-statistic is -.65 for the undisclosed group, compared to the -1.63 for the disclosed group.

Sensitivity Analysis

To examine the stability of the empirical results presented above, alternative methods are employed: (1) the market model with an estimation period from day -200 to day -61, (2) the mean-adjusted model with an estimation period from day -300 to day -61, (3) the market-adjusted model with an estimation period from day -300 to day -61, (4) the Dimson approach for adjusting the infrequent tradings with an estimation period from day -300 to day -61, and (5) the market model with an estimation period from day -160 to day -61 (relative to announcement day) plus the 100 trading days period after the outcome date. More detailed description of these models are contained in Chapter III.

Table 23 presents announcement period abnormal returns computed by the various models. Over the two-day announcement period, the abnormal returns are essentially the same when different models are used.

Table 24 and 25 report abnormal returns for the pre- and post-announcement periods. The variations among different methods appear to be larger over these periods than for the announcement period. But these variations do not materially

Table 23. Sensitivity Analysis: Announcement Period*

	Market Model I#	Market Model II#	Mean-Adjusted	Market-Adjusted	Dimson Adjusted
(A) All Firms	.176	.176	.177	.177	.176
(B) Managerial Reaction					
Neutral	.147	.147	.147	.148	.147
Favorable	.199	.199	.199	.199	.198
Unfriendly	.215	.214	.215	.216	.214
(C) Paymenta Method					
Undisclosed	.132	.132	.133	.134	.131
Cash	.183	.183	.184	.184	.183
Stock	.144	.145	.142	.145	.143
Mixed	.227	.227	.224	.226	.227
(D) Tpye of Acquisition					
Undisclosed	.167	.168	.167	.166	.165
Tender Offer	.275	.275	.277	.276	.276
Merger	.226	.226	.225	.227	.226
Investment	.031	.031	.031	.032	.031
(E) Terms					
Undisclosed	.114	.114	.114	.115	.114
Disclosed	.193	.193	.193	.193	.192
(F) Bidder's Identity					
Undisclosed	.271	.269	.273	.272	.271
Disclosed	.173	.173	.173	.173	.173
Rumored	.217	.218	.235	.218	.215

*The announcement period abnormal returns are computed over day -1 and day 0.

#The estimation period is from day -200 to day -61 for the market model II, and from day -300 to day -61 for the rest models.

Table 24. Sensitivity Analysis: Pre-Announcement Period*

	Market Model I#	Market Model II#	Mean-Adjusted	Market-Adjusted	Dimson Adjsted
(A) All Firms	.095	.097	.098	.121	.094
(B) Managerial Reaction					
Neutral	.097	.099	.097	.124	.097
Favorable	.097	.105	.106	.117	.096
Unfriendly	.078	.070	.078	.123	.080
(C) Payment Method					
Undisclosed	.057	.062	.080	.084	.055
Cash	.104	.105	.104	.132	.105
Stock	.065	.066	.071	.097	.064
Mixed	.120	.130	.118	.136	.120
(D) Type of Acquisition					
Undisclosed	.098	.111	.116	.126	.099
Tender Offer	.091	.091	.092	.121	.088
Merger	.089	.095	.090	.114	.089
Investment	.104	.101	.107	.128	.105
(E) Terms					
Undisclosed	.061	.067	.073	.095	.060
Disclosed	.103	.105	.105	.128	.103
(F) Bidder's Identity					
Undisclosed	.070	.091	.066	.123	.060
Disclosed	.095	.097	.098	.121	.096
Rumored	.115	.147	.192	.143	.094

*The pre-announcement period abnormal returns are computed from day -50 to day -2.

#The estimation period is from day -200 to day -61 for the market model II, and from day -300 to day -61 for the rest models.

Table 25. Sensitivity Analysis: Post-Announcement Period*

	Market Model I#	Market Model II#	Mean-Adjusted	Market-Adjusted	Dimson Adjsted
(A) All Firms	-.018	-.012	-.016	.006	-.081
(B) Managerial Reaction					
Neutral	-.011	-.007	-.002	.013	-.013
Favorable	-.014	-.004	-.016	.006	-.013
Unfriendly	-.055	-.062	-.067	-.024	-.052
(C) Payment Method					
Undisclosed	-.011	-.005	.002	.005	-.015
Cash	-.019	-.017	-.017	.008	-.019
Stock	-.017	-.006	-.028	-.000	-.015
Mixed	-.018	-.004	-.019	.002	-.016
(D) Type of Acquisition					
Undisclosed	-.046	-.034	-.040	-.038	-.046
Tender Offer	-.024	-.024	-.022	.017	-.026
Merger	-.007	.005	-.007	.014	-.006
Investment	-.018	-.019	-.013	.000	-.017
(E) Terms					
Undisclosed	-.052	-.046	-.039	-.028	-.055
Disclosed	-.009	-.004	-.010	.015	-.008
(F) Bidder's Identity					
Undisclosed	-.043	-.030	-.021	-.002	-.045
Disclosed	-.017	-.012	-.017	.006	-.017
Rumored	-.001	.030	.076	.026	-.019

*The pre-announcement period abnormal returns are computed from day 1 to day 50.

#The estimation period is from day -200 to day -61 for the market model II, and from day -300 to day -61 for the rest models.

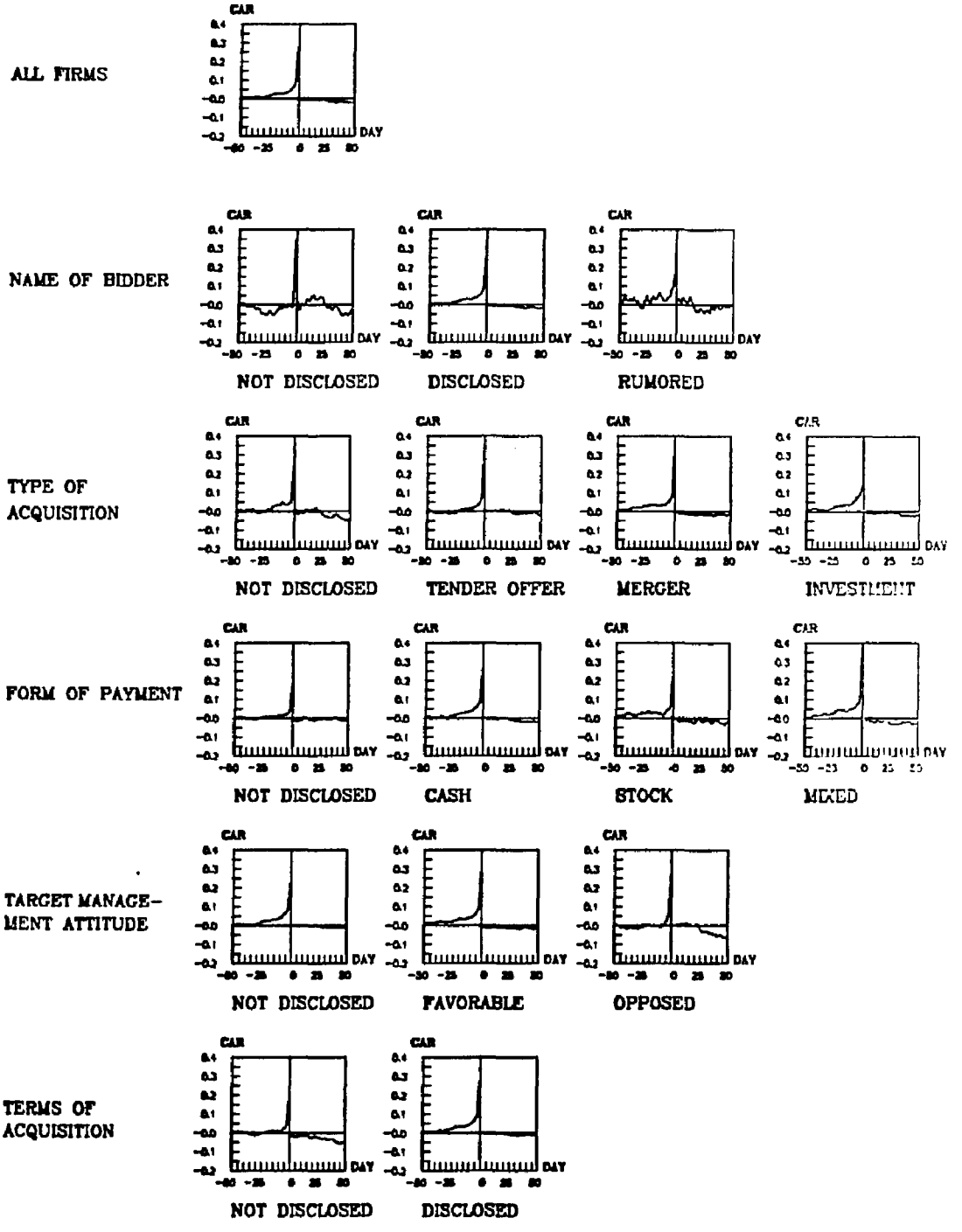

Figure 7. Cumulative Abnormal Returns for All Groupings (Abnormal Returns are cumulated seperately for the Post-Announcement Period)

affect the results of this research.[13]

Summary

The purpose of this chapter is to document empirical findings. The first part of this chapter reports sample characteristics. The second part presents abnormal returns associated with information on the various factors in an acquisition announcement.

The distributions of sample firms over the various dimensions are summarized in Table 8 and are detailed in Tables 9 through 13. The plots of abnormal returns of various groupings are shown in Figure 7 and are reported in Tables 17 through 22. The results of sensitivity analysis are presented in Table 23 through 25. A brief description of the empirical results is contained in Chapater V.

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[13] The method of using both pre-announcement and post-outcome periods as an estimation period involves much smaller sample size since return data are not available for many sample firms over the post-outcome period. The sample firms used in this method may be unrepresentative of the original sample. Hence, the result of this method is not compared with those obtained from other methods.

CHAPTER V

SUMMARY AND CONCLUSIONS

The previous chapter presents results of empirical tests. This chapter summarizes the study, draws conclusions and indicates future research directions.

Summary

Previous Literature

Acquisitions represent major corporate decisions for both target and bidding firms. Announcement of acquisition offers has a substantial impact on the security prices of target firms. In most cases, an acquisition announcement reveals information about several major factors including managerial reaction, payment method, type of acquisition, terms, and bidder's identity. Disclosure of information on these factors should jointly affect security prices.

Previous research on the impact of an acquisition announcement has largely ignored potential interdependence among several factors in an acquisition announcement. Failure to incorporate these factors may bias the results of these tests.

The methodology of previous research can also be criticized. Many recent studies[1] have chosen sample periods over the 1960's and 1970's encompassing the enactment of the

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[1] See Jensen and Ruback's[1983] survey on recent merger and tender offer studies.

Williams Act in 1968 and its Amendment in 1970. Empirical evidence shows that abnormal returns to target firms changed dramatically after the Act.[2]

In addition, certain past studies have restricted their samples to completed acquisitions.[3] Some acquisition offers, however, eventually fail.[4] Thus, examination of the market's reaction to completed acquisitions subjects the analysis to the ex-post selection bias suggested by Jensen and Ruback.

Some previous research obtains acquisition information from The Wall Street Journal Index rather than from The Wall Street Journal.[5] Although this represents a convenient approach, detailed acquisition information may not be contained in the index. Brown and Warner[1978] point out the importance of gathering accurate information from the Wall Street Journal. Using only The Wall Street Journal Index as a source of acquisition information may limit previous work.

Previous research has ignored confounding announcements surrounding the announcement period. The conventional measurement of the market's reaction over the two-day

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[2] See Jarrel and Bradley[1980] and Smiley[1975] for evidence on the increase of abnormal returns earned by target shareholders after the Williams Act.

[3] Gordon and Yagil[1981] and Wansley et al[1983] examine the abnormal returns relevant to the factor of payment method. Both studies restrict samples to completed mergers.

[4] The survey paper of Jensen and Ruback shows that around one-third of acquisition offers are unsuccessful.

[5] Kummer and Hoffmeister[1978], for example, examine the effect of managerial resistance in tender offers by obtaining their acquisition information from The Wall Street Journal Index.

announcement period (day -1 and day 0, where day 0 is the day an acquisition announcement is reported in the financial press) may be biased when a confounding event occurs before the closing of day 0 trading.

Other studies have examined the market's reaction at acquisition outcome dates.[6] Acquisition information released before the outcome date will already be impounded in security prices. On the outcome date, the market will only react to the 'new' information (not revealed or anticipated previously) in an outcome announcement. The pre-outcome disclosure may vary from one firm to another. This variation weakens the power of tests examining the price impact over the outcome date.

Empirical findings from previous studies are also inconsistent. In the studies that examine the effect of managerial reaction, Kummer and Hoffmeister[1978] report favorable market reponse when management resists a tender offer. In contrast, Dodd[1980] observes a price decline when management vetoes a merger proposal. In the studies of the abnormal returns to tender offers, Bradley et al[1980, 1983] report substantially higher abnormal returns in tender offers relative to those in most mergers. In contrast, Dodd and Ruback[1977] and Kummer and Hoffmeister[1978] report lower abnormal returns in tender offers, much closer to the abnormal returns of merger studies.

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[6] Dodd[1980] examines the effect of managerial veto of a merger proposal. He partitions his sample based on the outcome of a merger proposal and does not consider the pre-outcome disclosure of information on managerial reaction.

Objectives and Hypotheses

The first objective of this study is to extend previous research by incorporating several interdependent factors in a multivariate analysis. The market's reaction to managerial reaction, payment method, and different types of acquisition (merger, tender offer) is examined. The second objective is to provide evidence on relevant issues that are largely ignored by previous studies. These ignored issues include the market's reaction to the announcement of (1) investment offers, (2) acquisition terms, (3) bidder's identity, and (4) announcements not revealing the specific type of acquisition.

Specifically, the present study examines the impacts of the following factors on the abnormal returns to target firms: (1) managerial reaction (neutral, favorable, unfriendly), (2) payment method (cash, stock, mixed, undisclosed), (3) type of acquisition (merger, tender offer, investment, undisclosed), (4) terms (disclosed, undisclosed), and (5) bidder's identity (disclosed, undisclosed).

For the effect of managerial reaction, two alternative hypotheses are examined. The shareholder welfare hypothesis asserts that target management resists an offer to protect the shareholders' best interest. The pure managerial welfare hypothesis asserts that management resists an offer to protect its self-interest.

For the impact of payment method, several hypotheses are discussed. The tax hypothesis asserts that cash offers require

higher bid premiums in order to compensate target shareholders for the payment of capital gains taxes. The regulation hypothesis suggests that cash is a more efficient medium for undertaking an acquisition especially in a hostile takeover. The information signalling hypothesis asserts that cash offers convey positive signals to the market and may be associated with more favorable market reaction. These hypotheses all suggest higher abnormal returns for cash offers than for stock offers.

For the price impact between mergers and tender offers, the truncation hypothesis asserts that tender offers may involve more hostile acquisitions which are more costly for bidding firms to undertake. The higher costs in a hostile takeover will cause bidding firms to forego acquisitions that otherwise (i.e., without resistance) would have been profitable. The truncation of these acquisitions would lead to higher measured abnormal returns for tender offers. The alternative tax hypothesis suggests that mergers have the advantage of allowing target shareholders to delay payment on capital gains taxes. In view of this advantage, target firms would be willing to accept a lower premium in mergers. Both hypotheses suggest higher abnormal returns for tender offers than mergers.

Methodology

Abnormal returns are examined through two-way and multivariate analysis. Sample firms are collected through direct inspection of the front page of The Wall Street Journal over the period from April 1977 to September 1982. This sampling method

avoids the confounding effect of the enactment of the Williams Act and largely reduces the ex-post selection bias.

Acquisition information is obtained from the relevant articles in The Wall Street Journal after announcement dates are verified from The Wall Street Journal Index. This reduces potential errors which can occur when only The Wall Street Journal Index is consulted. In addition, sample firms with confounding day 1 announcements are excluded from the final sample.

Abnormal returns are computed using the standard cumulative abnormal return approach developed by Fama, Fisher, Jensen and Roll[1969]. The market's reaction to an acquisition offer is examined over the pre-, post, and announcement periods. Several alternative models and estimation periods are employed to examine the sensitivity of the results to the analytical techniques chosen.

Results

The final sample contains 287 target firms involving several types of acquisition (74 tender offers, 101 mergers, 83 investments, and 29 offers not revealing specific type). The abnormal returns (discussed below) are computed using the market model as the benchmark. The estimation period for fitting the model parameters is from day -300 throhgh day -61, which is the same as that used by Bradley and Wakeman[1983]. Abnormal returns are computed over three periods: the two-day announcement period (day -1 and day 0), the pre-announcement period (from day -50

through day -2), and the post-announcement period (from day 1 through day 50). The abnormal return over the announcement period measures the market's immediate response to an acquisition announcement and is the major focus of this study.

For the entire sample, abnormal return over the announcement period is 21.5% when management resists an acquisition, 19.9% for favorable managerial reaction, and 14.7% when management does not express any particular attitude. Although managerial resistance is associated with a slightly higher abnormal return than favorable managerial reaction, the difference between the two groups is not statistically significant. This pattern remains true for subsamples of mergers, tender offers and investments. The multivariate analysis is also performed by incorporating the potentially interdependent factors of managerial reaction, payment method, type of acquisition, terms, and bidder's identity. Over the entire sample, the abnormal return is 21.1% for the unfriendly group, compared to the 15.4% for the favorable group. Managerial resistance is still associated with a higher abnormal return than the group with favorable managerial response and the difference is significantly different from zero (t-statistic equal to 1.73).

The selection of payment method significantly affects security price reaction. Over the 101 merger offers, the announcement period abnormal return is 33.3% for the 33 cash mergers, 14.4% for the 32 stock mergers, 24.8% for the 23 mixed payment mergers, and 11.6% for the 13 mergers not revealing

specific payment media.[7] Cash mergers are associated with higher abnormal returns than stock mergers. The difference of 18.9% has a t-statistic of 3.32 (significant at 0.2% level). The abnormal returns for the mixed payment mergers (24.8%) are between those for the cash mergers (33.3%) and stock mergers (14.4%). When the multivariate analysis is applied over the entire sample, the abnormal return in cash offers exceeds that in stock offers by 16.0%. The evidence of higher abnormal returns in cash offers rather than in stock offers is consistent with each of the hypotheses examined. Nevertheless, the analysis of Chapter IV reveals that these hypotheses do not seem to explain the magnitude of observed difference between cash and stock offers.

The abnormal returns for mergers and tender offers are consistent with past single factor analysis. The announcement period abnormal return is 22.6% for 101 mergers and 27.5% for 74 tender offers. The difference of 4.9% between mergers and tender offers does not seem to relate to managerial reaction. When the effect of managerial reaction is isolated, tender offers still involve higher abnormal returns than mergers. For the subgroup with favorable managerial reaction, abnormal returns for tender offers exceed that for mergers by 7.1%. For the subsample with unfriendly managerial reaction, abnormal returns in tender offers also exceed that in mergers by 4.1%.

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[7] Other subsamples (e.g., tender offers, investments) are largely cash transactions.

The pattern noted above changes when the effect of payment method is isolated. Over all cash offers, the abnormal return is 29.1% for the 59 cash tender offers, compared to the 33.3% for the 33 cash mergers.[8] After isolating the effect of payment method, mergers involve higher abnormal returns than do tender offers---a reverse of the original pattern. Thus, the original observation of higher abnormal return in tender offers over that of mergers appears to be partially caused by payment method. Using multivariate analysis, the abnormal return is higher in mergers (27.8%) than in tender offers (24.4%).

Investment offers involve lower but significant abnormal returns over the two-day announcement period. The abnormal return is 3.1% with a t-statistic equal to 7.97. Two subgroups of investments are also examined. The acquired group consists of investments with subsequent successful mergers or tender offers. The unacquired group consists of investments not subsequently acquired. The two groups do not differ dramatically over the announcement period, but show different patterns over the pre- and post-announcement periods. Over the pre-announcement period from day -50 to day -2, the abnormal return is 17.7% for 14 subsequently acquired investments compared to 8.3% for 66 investments not subsequently acquired. An important finding of this research is that the market seems to differentiate between

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[8] Over the mixed payment transactions, abnormal return is marginally higher for mergers (24.8%) than for tender offers (24.0%).

the two groups over the pre-announcement period. Investments generally involve pre-announcement period tradings. One explanation for this finding is that expectation on the outcome of an investment may be impounded in security prices over the pre-announcement period through tradings of insiders (including the buying firm). This suggests, of course, that these insiders are trading on the expectation of a later merger or tender offer, even though the initial announcement states "investment only". Over the post-announcement period from day 1 through day 50, the subsequently acquired group is also associated with higher abnormal return (4.8%) than the subsequently unacquired group (-3.3%).

For initial announcements which do not reveal the type of acquisition, the abnormal return is 9.8% over the pre-announcement period and 16.7% over the announcement period. Target shareholders earn substantial abnormal returns despite the fact that the exact type of acquisition is not revealed.

Over the announcement period, the disclosure of acquisition terms relates to higher abnormal return (19.3%) than the undisclosed group does (11.4%). As before, the difference between these two groups may be affected by the effects of type of acquisition and payment method. When examined through multivariate analysis, the abnormal return is 17.9% for the disclosed group and 16.4% for the undisclosed group.

The bidder's identity is disclosed in the overwhelming majority of initial acquisition announcement. For the 9

undisclosed cases in the sample, a case-by-case approach is employed in examining their abnormal returns. These 9 undisclosed cases are compared with their disclosed counterparts by isolating the effects of managerial reaction, payment method, and type of acquisition. The majority of the undisclosed cases involve higher abnormal returns than their disclosed counterparts.

Conclusions

The results of the present study differ in many respects from those of previous work. Previous studies have largely omitted several of the interdependent factors disclosed in an acquisition announcement. In the present study, the interdependence among several factors appears to be important. The results obtained from multivariate analysis differ from those using univariate analysis for several categories (e.g., mergers versus tender offers, disclosure of acquisition terms versus non-disclosure, favorable managerial reaction versus unfriendly reaction).

From the univariate analysis, the abnormal return is higher in tender offers than in mergers in the present study. This pattern is consistent with previous findings and also with the truncation hypothesis. After isolating the effect of payment method (e.g., by comparing cash mergers to cash tender offers), mergers are associated with higher abnormal returns than tender offers. This reversed pattern is confirmed through applying

multivariate nalysis in the entire sample. These results are inconsistent with the truncation hypothesis. The observed higher abnormal returns in tender offers noted in previous literature appear to be partially attributed to the effect of payment method.

Managerial resistance is associated with higher abnormal returns than favorable managerial reaction for the overall sample and several subsamples (e.g., tender offers, investments). Moreover, after considering the interdependence among several factors through multivariate analysis, significantly higher abnormal returns for the resisted group are noted. The abnormal return in the resisted group exceeds that in the favorable group. The market appears to react favorably to managerial resistance in an initial acquisition announcement. The evidence is consistent with the shareholder welfare hypothesis.

The market's reaction to acquisition announcements differs substantially for different payment methods. Cash merger offers involve much higher abnormal returns than stock merger offers. This pattern remains the same in multivariate analysis. Previous studies attribute the higher abnormal return in cash offers than in stock offers to factors such as tax treatment. The present study suggests that the tax hypothesis explains at most a small portion of what is a large difference (over 16% in the two-day announcement period).

The market's reaction to investment offers is not examined in most past work. The present study finds that the announcement

of investment offers has positive market reaction for both subsequently acquired and unacquired groups. For the subsequently acquired group, target shareholders continue to gain over the post-announcement period. In contrast, shareholders of the (subsequently) unacquired group suffer from a price decline during this period. Around 17.5% (16 out of 80 cases) of the investment offers involves a subsequent merger or tender offer.

Announcements not revealing the specific type of acquisitions also involve significant price reaction in both pre- and announcement periods. These offers have been ignored by past research.

The effect of disclosure of acquisition terms may be correlated with other factors such as type of acquisition and payment method. From the multivariate analysis, the abnormal return is slightly (but insignificantly) higher for the disclosed group than for the undisclosed group. This evidence is consistent with the notion that disclosure of acquisition terms reduces uncertainity concerning the prospect of the acquisition. However, the evidence is not statistically significant and should be interpreted with care.

Cases where the bidder's identity is undisclosed involve higher abnormal returns than the corresponding disclosed group. Although the number of undisclosed cases is small, the large difference between the two groups suggests that (as implied in Halpern[1983]) information on bidder's identity may create a significant price impact.

Limitations

The sample of this study is restricted to initial acquisition announcements reported on the front page of The Wall Street Journal. Although this procedure reduces ex-post selection bias, the sample does not include all acquisition announcements in The Wall Street Journal (and does not include acquisitions not reported in the financial press).

Further, abnormal returns are estimated from the market model. Although the residuals from the estimated model are generally independent, some degree of non-normality and heteroskedasticity appears to exist for the sample. Problems may also occur due to any inadequacy of the market model to describe true return generating process. Bias may be diversified away through portfolio formation. Moreover, the sensitivity tests suggest that the results are robust concerning selection of model. Nevertheless, these potential biases (as noted on pages 63 and 93-4) should still be recognized.

Finally, the sample size may be insufficient for several subgroups (e.g., the subgroup with bidder's identity undisclosed) thus limiting the ability to draw strong statements for these subgroups.

Future Research

The present study opens several avenues for future exploration. In the present study, the sample size is small for the group where bidder's identity is undisclosed. Although the

small size restricts the power of a test, the significantly higher abnormal return for the undisclosed group relative to the disclosed group suggests a need for further research.

Several other dimensions of the bidding firms can be incorporated into the analysis. The bidding firms' pre-offer ownership and the degree of desired ownership of the target firm may be crucial to the offered premium, the reaction of the target's management, and the outcome of the offer. The bidding firms' financial characteristics may affect the selection of the payment method, and other aspects of an acquisition.

In the present study, the abnormal return (from univariate analysis) is much higher for targets that disclose their acquisition terms than for those that do not. Although the terms may be correlated with other factors (e.g., payment method, type of acquisition), future study may expand the characteristics of an offer. Further dimensions on acquisiton terms deserving attention include the bid premium and the pro rata ratio specified in an offer.

Part of the present study examines the initial market reaction to investment offers and announcements not revealing specific information on type of acquisition. These offers appear to affect target shareholders' welfare and often seem to be associated with a potential acquisition program. Future research can analyze the developments of these offers. The 'undisclosed' acquisition offer may lead to a tender offer or a merger. The market may react differently when more information is disclosed

after the initial announcement. The investments may subsequently involve a merger or a tender offer. It is important to note that the market seems to differentiate between these two types of investments over the pre-announcement period. Future research on potential association between insider tradings and price behavior in this pre-announcement period is also desirable.

APPENDICES

Appendix 1. Transformation from Indicator Variable Regression to Analysis of Variance Model

The transformation from an indicator variable regression to an analysis of variance model is as shown below (See Andrews, Morgan, Sonquist and Klem[1973] for this transformation.):

$$a(i,j) = d(i,j) - q(i),$$

where

a(i,j) = main effect for the jth category of qualitative variable i in an analysis of variance model.

d(i,j) = coefficients from indicator variable regression for the jth category of qualitative variable i,

p(i,j) = proportion of observations in the jth category of qualitative variable i.

q(i) = p(i,1) * d(i,1) + ... + p(i,J) * d(i,J) (i.e., summing over all categories j=1,...,J).

Table 26 presents results from both indicator variable regression and analysis of variance model. The dependent variable is the two-day (announcement period) abnormal return. In the regression model, 10 indicator variables were used. (For each factor with C categories, the regression uses C-1 zero-one

indicator variable(s). The coeficient for the ramaining one category of each factor is shown as zero in Table 26.) For example, the coefficients from the indicator variable regression for the favorable and unfriendly managerial reaction are respectively -.03114 and .02621 (under the column of d(ij) in the table). These two categories account for .39789 and .13380 (under the column of p(ij) in the table) of the total sample observations. These indicator variable coefficients, d(ij), are weighted (by p(ij)) to give an adjustment factor, q(i). For the factor of managerial reaction, the value of this adjustment factor is -.0089. The main effects, a(ij), from the analysis of variance model can be computed as the difference between the indicator variable regression coefficients, d(ij), and the adjustment factor, q(i). For the favorable and unfriendly managerial reaction, the main effects are respectively -.0223 and .0351. The main effects represent the deviation of each cateegory from the population mean (e.g., the intercept in the analysis of variance model .1759).

The interaction effects among the five dimensions of acquisition information are also examined. None of the interaction effects are significant (at the .20 level).

Table 26. Results from Indicator Variable Regression and Analysis of Variance Model

	Coefficients from Indicator Variable Regression d(ij)	p(ij)	q(i)	Main Effects from Analysis of Variance Model a(ij)
Intercept	.20360			.1759
Managerial Reaction			-.0089	
Neutral	0	.46831		.0089
Favorable	-.03114	.39789		-.0223
Unfriendly	.02621	.13380		.0351
Payment Method			.0513	
Undisclosed	0	.14789		-.0513
Cash	.09024	.60915		.0389
Stock	-.06976	.11268		-.1211
Mixed	.03253	.13028		-.0188
Acquisition Type			.0186	
Undisclosed	0	.09508		-.0186
Tender Offer	.08694	.26056		.0684
Merger	.12018	.35211		.1016
Investment	-.15869	.29225		-.1773
Acquisition Terms			.0118	
Undisclosed	0	.20070		-.0118
Disclosed	.01474	.79930		.0030
Bidder's Identity			-.1005	
Undisclosed	0	.03169		.1005
Disclosed	.20360	.96831		-.0033

* The coefficients are estimated using 284 observations by excluding three cases where bidder's identity is rumored (not confirmed).

Appendix 2. Estimation of Tax Effect

To estimate potential tax effects in different payment methods, consider a marginal investor (target shareholder), who plans to hold his or her shares for a certain period of time before eventually selling shares. The investor would be indifferent between a cash offer and a stock offer when a certain premium is added to a cash offer to compensate for the tax payment in the cash offer.[1] Let:

T = tax rate for a marginal investor,

R = annual interest rate (opportunity cost) for the investor,

H = holding period (in years) under a stock offer,

(1+R)**H = one-plus-the interest rate raised to the power of H,

STOCKGAIN = capital gains from a stock offer, which is assumed to be constant over time, and

TAX PREMIUM = extra premium for cash offers to compensate for tax payments.

In order to make the investor be indifferent between a cash offer and a stock offer, the present value of after tax gains should be the same from the two offers. The after tax gains from cash offers is (STOCKGAIN+TAX PREMIUM)(1-T). The corresponding gains

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[1] This simple example is mainly to illustrate the tax effect and does not incorporate other factors such as the probability of success implied by different payment methods.

from stock offers is the difference between the abnormal return, STOCKGAIN, and the present value of taxes, (STOCKGAIN)(T)/(1+R)**H. This gives the equation,

(STOCKGAIN+TAX PREMIUM)(1-T) = STOCKGAIN-(STOCKGAIN)(T)/(1+R)**H.

Solving the equation gives the extra premium for cash offers as:[2]

TAX PREMIUM = (T/(1-T))(STOCKGAIN)(1-1/(1+R)**H).

For an investor with a tax rate equal to 50%, annual opportunity cost at 20%, an abnormal return of 20% from a stock offer, and a planned holding period of one year subsequent to an acquisition offer, the above simple formula implies that a premium for cash offers of about 3.3% is sufficient to compensate for tax payment.

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[2] The example assumes that all stock offers are taxfree transactions.

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