THE ROLE OF ACCOUNTING INFORMATION IN INVESTOR

ASSESSMENTS OF CORPORATE TAKEOVERS

DISSERTATION

Presented to the Graduate Council of the

University of North Texas in Partial

Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Phillip W. Thornton, B.A., M.B.A.

Denton, Texas

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The objective of this research is to assess whether the financial markets impute motives to bidding firm managers in setting the new equilibrium share price at the time a tender offer is announced. Theorists suggest that takeovers may be motivated by the need to discipline poorly managed firms, the failure of target firm managers to disperse firm free cash flow, the empire building of bidding firm managers, market exploitation or synergy.

This research postulates that there is a functional relationship between accounting variables of bidding and target firms and the risk-adjusted change in the bidding firm's share price cumulated in a test period around the takeover announcement. These variables are assumed to proxy for firm efficiency, firm free cash flow, or firm agency costs.

A stepwise ordinary least squares regression was run to develop an explanatory model. The dependent variable was the bidding firm's prediction errors cumulated for the day before and the day of the announcement of the tender offer. The set of possible independent variables includes all the accounting and growth variables which might proxy for those bidding and target firm characteristics implied by the various takeover theories.

The results of this research do not support a monolithic takeover theory. Bidding firms do not appear to be better managed or more profitable than the

targets for which they bid, except possibly in a minority of takeover attempts wherein the bidder is much smaller than the target. In fact, the relative profitability of bidders and targets appears to play little or no part in the market's assessment of takeover bids. Buyers and sellers in the capital markets appear to use the relative size of bidder and targets as a way of distinguishing empire building from other productive bidding firm motives.

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CHAPTER I

INTRODUCTION

Types of Mergers

This research questions whether accounting information is used to assess the probable motives of bidding firm managers in tender offers and whether such assessments are consistent with observed market reaction. The research generates an analysis of bidding and target firm accounting data, guided by extant takeover theory, to explain the change in bidding firm share prices at the time of the tender offer.

Tender offers are one means of consummating a merger. Mergers are transactions that form one economic entity from two or more previously existing entities. Some mergers are consummated by direct negotiation between the managers of the merging firms while others are initiated through tender offers. In a tender offer, the acquiring/bidding firm seeks control of the acquired/target firm. In these cases, the bidding firm bypasses the target firm management by making an offer directly to the stockholders of the target firm to submit or tender their shares for purchase at a specified price which may be expressed in cash, securities or both. Mergers consummated by tender offers are often referred to as takeovers. For all practical purposes the terms are synonymous and will be

used interchangeably in this dissertation. A hostile takeover is a tender offer in which the target firm managers oppose or can be expected to oppose the offer.

To induce a sufficient number of target firm shareholders to tender their shares, the bidding firm offers to purchase a specified number of shares at a premium over market price. This takeover premium is the excess of the offer price above pre-offer market price. Takeover premiums are generally substantial and have averaged about 50 percent in recent years (Jensen 1988, 314).

Social Implications of Takeovers

The recent wave of takeovers has raised the level of controversy about the economic and social costs and benefits of mergers and acquisitions. Coffee (1984) suggests that a central question in this controversy is whether takeovers promote increased economic efficiency. Do they create, destroy, or merely redistribute wealth? Coffee (1984) asserts that the difference between economically productive and unproductive combinations may arise from the differences in motives that inspire the managers of firms to initiate takeovers. Corporate restructuring through mergers affects stockholders, managers, employees and the community at large because a new managerial regime often initiates a major redeployment of corporate assets.

Relatively little research has been explicitly aimed at testing the motives for takeovers. Most empirical research has concentrated either on the wealth gains that accrue to target and bidding firm shareholders, or on the financial

characteristics of target firms. However, research into the motives for takeovers must address the question of why individuals or firms are willing to purchase an asset at a premium over an available market price. Answers to this question generally are framed in terms of theories about the motives for takeovers. Unfortunately, there is no consensus as to the actual motives for takeovers although a wide variety of possible motives has been put forward.

Firth (1980) suggests that potential takeover motives can be roughly divided into those that intend to maximize the value of the bidding firm and those that aim to maximize the personal utility of the bidding firm's managers. Theories supporting the former category suggest that discipline is the main purpose of takeovers. These theories suggest that target firms are either poorly managed, retain excess cash flow, or are in need of a thorough restructuring. These hypotheses assume that more competent managers in the bidding firm are willing to pay a premium over market price to eject the inefficient management and realize the latent value of the target firm. Other theories suggest that it is the bidding firm managers who are inefficient. Proponents of these theories maintain that takeovers are motivated by hubris or the empire-building of bidding firm managers.

The purpose of this study is to examine whether the capital markets understand this basic dichotomy and therefore assess the motives of bidding firm managers when setting the equilibrium market price of the bidding firm's

stock at the time of a takeover announcement. Data contained in the financial statements issued by bidding and target firms are used as the basis for assessing the motives of bidding firm managers.

Synopsis of Research

The research proceeds through three stages. First, I assemble a sample of tender offers which were made between 1979 and 1988. Theories about takeover motives imply that bidding and target firms will have certain financial and operating characteristics. Guided by these theories, accounting data and relevant financial ratios are developed for both bidders and targets in the sample to determine whether there are systematic financial and performance differences between the two groups.

Next, a market based model calculates the risk adjusted returns to bidding firm shareholders in a short event period around the time the tender offer becomes public knowledge. Finally, the cumulative prediction errors serve as the dependent variable for a cross-sectional regression. The financial ratios serve as the independent variables that explain the variation in the risk adjusted returns.

CHAPTER II

THEORETICAL FRAMEWORK

Coffee (1984) suggests that the potential motives for takeovers can be subsumed under four broad theories. These are the disciplinary hypothesis, the empire building hypothesis, the exploitation hypothesis, and the synergy hypothesis. The most influential of these is probably the disciplinary hypothesis.

The Disciplinary Hypothesis

Manne (1965) advanced the thesis that takeovers are a manifestation of a market for corporate control. This idea, which is the source of the disciplinary hypothesis, suggests that competition for the control of corporate assets is the major deterrent to managers who might otherwise further their own self interest at the expense of stockholders. This theory dominates empirical finance literature on takeovers.

Jensen (1988) suggests that corporate takeovers are a major component of the managerial labor market. Management teams compete for the right to direct corporate assets. The competition for control of poorly managed firms benefits the economy because inefficient, self-serving managers are removed through takeovers initiated by more efficient management teams (Jensen 1988, 317). Thus, supporters of the disciplinary hypothesis regard corporate mergers

and acquisitions as an important and even indispensable agent for change in the economy.

Jensen (1988) also suggests that the theory provides an explanation for the wave pattern of mergers. Takeovers tend to occur when market or technological changes require a major redeployment of assets in the economy or in a particular industry. Sometimes, incumbent managers are incompetent or reluctant to make the necessary changes. At other times, the operations of the corporate bureaucracy are simply too slow and cumbersome to react to changed conditions (Jensen 1988, 9).

The disciplinary hypothesis implies that internal control mechanisms, such as independent boards of directors or the threat of proxy contests, cannot exert adequate control over a deteriorating management team. Intervention in the form of a takeover may be the only way to remove incompetent management or to initiate the redeployment of assets (Coffee 1984).

The main support for the disciplinary hypothesis is a body of empirical research in finance suggesting that there are substantial gains to target firm shareholders from takeover bids. Jensen and Ruback (1983) in a survey of the empirical evidence find that target firm shareholders reap abnormal returns averaging sixteen to thirty percent around the date of takeover announcements. Jarrell and Brickley (1987) find that these returns have increased to an average of fifty-three percent during the 1980s.

Researchers often cite these results as support for the disciplinary hypothesis. However, Ravenscraft (1987) points out that they do not reach this conclusion through direct evidence of a link between the premiums paid to target firm shareholders and inefficiently managed firms, but rather through a process of elimination of other motives. Since many possible merger motives are consistent with large takeover premiums, the process of elimination is not really an effective way of testing the disciplinary hypothesis (Ravenscraft 1987, 21).

The empirical evidence of gains to bidding firm shareholders is less conclusive. Jarrell and Poulsen (1987) present evidence suggesting that abnormal returns on bidding firm stock dropped from about five percent in the 1960s to minus one percent in the 1980s. Jarrell et al. (1987) cite evidence suggesting that this decrease may be attributable to new regulations that place the bidding corporation at a competitive disadvantage. They do not, however, explain the negative returns that appear in the 1980s or why managers would want to engage in takeovers that the market considers as negative net present value investments (Ravenscraft 1987, 21). The evidence for bidding and target shareholder wealth gains is more fully developed in Chapter 3.

Ravenscraft (1987) identifies two problems with the conclusion that gains to both bidding and target firm shareholders mean that takeovers are economically beneficial. In the first place, the theory depends upon an assumption of efficient markets. Some evidence (discussed later) suggests that

markets may not be efficient in regard to mergers and takeovers. Second, other research finds significant negative returns to post-merger firms over a period of several years following the merger. The net long-run effect of mergers may be negative.

Lev (1986) also takes exception to the disciplinary hypothesis. He identifies two classes of winners in takeovers. Acquired firm stockholders are winners because they sell their stock at a price well above its value on the open market. Managers of acquiring firms are also winners, at least for a time, because they benefit through increased prestige and diversification of human capital.

On the losing side are acquiring firm shareholders and the managers of acquired firms who lose their jobs. Lev maintains that while bidding firm shareholders may not lose much in actual stock prices, there is evidence that they do lose some value. At any rate, they do not gain much and they suffer an indirect loss through the management time and attention spent on acquisitions that could have gone into more productive activities (Lev 1986, 367).

The Empire Building Hypothesis

Coffee (1984) points out that managers of target firms face a serious conflict of interest because of their incentive to resist takeover bids in order to preserve their positions within the company. The interests of the target firm

shareholders may, on the other hand, be best served by acceding to the takeover bid and selling the company at a premium over current market value.

However, the empire building hypothesis suggests that the most critical conflict of interest in takeover contests may lie on the side of the bidding corporation. Managers of firms may tend to maximize size rather than profits. Thus, takeovers may be just another aspect of the agency problem because managers pursue increased size without regard to the maximization of firm value (Coffee 1984).

There are several reasons why this may be so. Size may be positively correlated with management compensation. Increased size also may result in more security from takeovers or other control contests, and may enhance the status and prestige of incumbent management. Increasing the size of the firm through diversification can also increase the stability of earnings (Coffee 1984).

Economic theory suggests that stockholders, who can easily diversify their own portfolios, do not benefit from increased earnings stability. However, managers have much undiversifiable human capital tied up in the firm and may benefit from increased diversification. This is especially true if the compensation of top executives is tied to accounting based performance measures (Coffee 1984).

The Synergy Hypothesis

According to this theory, takeover premiums are justified because the target firm has a special and unique value to the acquiring firm. The value of

the combined firms is expected to be greater than the sum of the value of the

two independent companies because of certain financial or operating

characteristics possessed by the target firm. Synergy arises because of

increased efficiency through economies of scale, cost reductions, lower

borrowing costs, tax advantages and other factors. (Coffee 1984).

The Exploitation Hypothesis

The proponents of this hypothesis maintain that managers exploit

discounts in the market prices of stocks and acquire targets at bargain prices.

Kraakman (1988) identifies two versions of the exploitation hypothesis. The

first version, the misinvestment hypothesis, comes closest to traditional

accounts of takeover gains. This hypothesis suggests that investors rationally

mistrust managers to invest assets in a way that will maximize the value of the

firm.

Kraakman (1988) emphasizes that the misinvestment hypothesis is

different from the traditional explanations of manager/shareholder conflict over

shirking and management perquisites. It follows more recent thinking about the

distribution of shareholder returns, and is similar to Jensen's free cash flow

theory discussed below. If managers are reluctant to distribute the firm's free

cash flows (cash flows exceeding investment requirements), then shareholders

must inevitably price firms below informed appraisals of their assets (Kraakman

1988, 897).

The misinvestment hypothesis is conceptually related to traditional accounts of acquisition gains arising from improvements in the operational management of target firms. There is, however, an important difference. The more traditional explanation assumes that the ongoing mismanagement of the assets of target firms reduces their cash flows. Thus, low share prices may accurately mirror the value of mismanaged target assets. The explanation suggests that there are no discounts.

In contrast, the misinvestment hypothesis suggests that discounts can arise even when target assets are optimally deployed. These discounts, which bidders can exploit, result from the ongoing or expected misinvestment of surplus cash flows that exceed targets' operating requirements. Acquiring firms reap gains by merely purchasing discounted shares at any price up to the full value of the target firm's assets (Kraakman 1988).

Kraakman (1988) terms the second version of the exploitation hypothesis, the market hypothesis. Unlike the misinvestment hypothesis, it does not assume market efficiency. Market efficiency presumes that share prices fully capitalize the value of corporate assets in the hands of incumbent managers. The market hypothesis makes the opposite assumption, suggesting that discounts arise because share prices are sometimes unreliable estimates of the expected value of corporate assets.

Kraakman (1988) suggests that uninformed traders may introduce persistent biases, cumulative noise or price bubbles into markets, leading to

incorrect valuation and trading strategies. Fallacious assumptions or irrational trading because of fads or a sheer love of the gamble may distort share prices and generate discounts or premia.

If market discounts are to provide an explanation for a rational theory of corporate takeovers, potential acquirers must be able to make reliable estimates of the breakup value of corporate assets. LeBaron and Speidell (1987) suggest that such valuation is possible through examination of the replacement cost of corporate assets. They maintain that the early corporate raiders were the first to notice and exploit, through takeovers, the difference between the value of a firm's assets and its value in the stock markets.

LeBaron and Speidell (1987) believe that discounted firms can be identified by evaluation of publicly disclosed business segment data. They compare each segment with the market value of similar single-line firms. They suggest that this chop shop approach allows easy identification of firms that are selling at discounts to their total replacement value. LeBaron and Speidell (1987) suggest that many diversified firms are selling at discounts to their replacement value, these firms can be identified, and are prime targets for takeovers.

The fact that discounts exist does not mean that they are a sufficient motive for takeovers. Kraakman (1988) maintains that share prices also must fall below replacement value by a sufficient amount to make the expense and risk associated with a takeover worthwhile. Finally, if market discounts are to

provide an explanation for takeovers, potential bidders must be convinced that the estimates of takeover gains are sufficiently reliable to justify a takeover bid. These conditions are not easy to test, but Kraakman suggests that indirect evidence indicates that all three conditions hold for diversified firms. For instance, the shares of some specialized firms, such as closed-end mutual funds clearly sell at discounts from the replacement value of their assets. These funds often have total market values substantially less than the value of the securities that constitute the bulk of their assets.

Kraakman (1988) suggests that there is no consensus explanation of the origin of the discounts on closed-end mutual funds, although theorists tend to support either market or manager explanations. Market explanations suggest that markets are inefficient or that we do not understand the actual structure of investor returns on closed end funds. Managerial explanations suggest that investors discount the funds because of a rational mistrust of the investment skills of the fund managers.

Kraakman maintains that there are problems with both explanations. The market-based theories question the validity of the efficient markets hypothesis that is the fundamental postulate of financial economics. The managerial explanations cannot explain why the past performance of funds is not highly correlated with the size of the discount (Kraakman 1988, 904-905). The free cash flow theory discussed below also may be relevant to the existence of closed-end fund discounts.

The Free Cash Flow Hypothesis

Coffee (1987) suggests that Jensen's free cash flow hypothesis is merely an intriguing variation of the disciplinary hypothesis. However, the free cash flow theory has implications not only for the disciplinary, but also for the empire building and exploitation hypotheses.

Jensen (1987) asserts that the market for corporate control is still best understood as a major component of the managerial labor market. However, he has expanded the traditional theory by suggesting that takeovers emanate from the agency costs associated with the conflicts between managers and shareholders over the payout of free cash flow.

Free cash flow is defined as cash flow in excess of what is required to fund all positive net present value investment projects available to the firm. The value of the firm will decline unless free cash flow is paid out to the shareholders because the firm's cost of capital is presumably greater than the return generated by cash deposits.

Managers have incentives to retain this excess cash within the firm. Payment of cash to shareholders reduces managerial control of resources and potentially subjects managers to the monitoring of the capital markets. Retaining cash means that management may be able to finance projects internally and avoid unwelcome outside monitoring by lenders.

In effect, Jensen (1987) argues that the existence of free cash flow tempts management to engage in empire building through the adoption of

negative net present value investments. Managers have many incentives to expand the size of firms beyond the level required to maximize shareholder wealth. Jensen (1987) suggests that growth increases the amount of resources subject to managerial control and increased size is positively correlated with compensation for top executives. Also, middle-level managers are typically rewarded for their efforts through promotion rather than performance bonuses. This system creates an additional incentive for top executives to expand the size of the firm. Growth creates new promotion opportunities with which to reward loyal subordinates.

Jensen (1987) suggests that the free cash flow theory is consistent with a wide range of findings for which there was previously no adequate explanation. For instance, it provides a persuasive explanation for positive market reactions associated with debt for stock exchanges. Increased debt effectively bonds management to pay out future free cash flow. This bonding is more convincing to the market than a simple dividend increase because debtholders have the right to force bankruptcy in case of default. Debt reduces the agency costs of free cash flow by reducing managerial discretion.

Jensen (1987) argues that the major benefit of diversification related mergers may be that they involve less waste of free cash flow than internal investments. Thus, acquisitions financed by debt or cash (thereby reducing free cash flow) may increase the value of the firm even if the combination

actually creates operating inefficiencies. If this theory is valid even negative synergy combinations may increase total social welfare.

The division of the gains between target and bidding firm shareholders is determined by direct negotiation. Jensen (1987) argues that the high premiums associated with many takeovers may arise simply because the bidding firms have large amounts of free cash flow that would otherwise be wasted upon negative net present value internal investments in the absence of the takeover.

Thus, the opportunity cost of the funds used in the takeover may be lower than the firm's cost of capital. Bidders simply tend to overpay and transfer some or all of the merger gains to target firm shareholders. Acquisitions are simply a way in which managers invest cash in order to avoid paying it out to shareholders. The theory predicts that firms with unused borrowing power and large free cash flows are more likely to undertake low benefit or value destroying mergers than are firms with little free cash flow.

Jensen (1987) does not seem to realize that the free cash flow theory provides a justification for both the disciplinary and the empire building hypothesis. In cases where the target has large free cash flow and the bidding firm relies upon increased debt to finance the transaction, the acquisition can be seen as disciplining inefficient target management and the beginning of a necessary restructuring of corporate assets. In this case, the merger might be economically beneficial because of the potential for a more efficient allocation of resources. When the bidding firm has free cash flow and the target firm does

not, the opposite situation would occur. Bidding firm assets might be transferred to target firm shareholders without the likelihood of an increase in allocational efficiency. In this case, takeovers may be a special case of empire building.

Jensen (1987) cites the oil industry as an example of the effects of free cash flow in precipitating takeovers. In the early 1980s oil companies were flush with cash because of dramatic increases in the price of oil. At the same time, structural changes mandated a major restructuring of the industry. These changes included a substantial increase in the price of oil from 1973 to 1979, reduced domestic oil consumption, large increases in the supply of oil, lowering expectations of future price increases, increased exploration and development costs, and higher real interest rates.

In short, the industry had excess capacity and oil companies were also loaded with cash. Management did not, however, pay out the free cash flow to shareholders. Instead, they continued to incur heavy exploration expenditures. Jensen (1987) maintains that these wasteful expenditures explain why it was cheaper to buy oil on Wall Street than to search for it in the ground. "Wall Street was not undervaluing the oil; it was valuing it correctly, but it was also correctly valuing the wasted expenditures on exploration and development that oil companies were making" (Jensen 1987, 126). Ultimately, the capital markets put a stop to this behavior through takeovers and the threat of takeovers, thereby increasing total allocational efficiency.

Jensen (1987) argues that efforts to regulate takeovers are counter-productive. They represent another attempt of a special interest group (inefficient corporate managers) to benefit at the expense of society. He does not, however, seem to realize that empire-building managers may create serious diseconomies. By using the free cash flow at their disposal to engage in economically destructive takeovers, they may displace efficient target firm managers and seriously damage the welfare of other corporate stakeholders.

The Hubris Hypothesis

Each theory discussed to this point assumes that the initiators of takeovers engage in rational behavior. Managers initiate takeovers to maximize their utility, either directly through some kind of exploitation or indirectly by maximizing the value of the firm's shares. Roll (1986) challenges the rationality assumption. He argues that managers may simply be mistaken about the value of target firms. Takeover gains have been overestimated and may be non-existent. Large takeover premiums may be a simple wealth transfer from acquiring to target firm shareholders.

Roll (1986) argues that the factor which most distinguishes takeovers from other types of market activities is the attempt to value something that already has an observable market price. Moreover, the valuation is bounded on its lower end by the market price. The firm's minimum value is its current market price and the prospective acquirer knows that the target firm shareholders will not sell their interest for anything less than this price.

If there are no potential takeover gains, but some firm managers believe that such gains do exist, the valuation of the target firm becomes a random variable with a mean value at the current market price. However, a bid is made only when the valuation exceeds the market price. The left half of the distribution is truncated. "Offers are observed only when the valuation is too high; outcomes in the left tail of the distribution of valuations are never observed. The takeover premium in such a case is simply a random error, a mistake made by the bidding firm" (Roll 1986, 199).

Why then would firms ever make takeover bids? Roll suggests that market prices seem to reflect rational behavior, but the market price is really an average that aggregates a multitude of individual decisions. There is no reason to suppose that each individual decision is rational. In fact, "...a market actually populated by rational beings is observationally equivalent to a market characterized by grossly irrational individual behavior that cancels out in the aggregate, leaving the trace of the only systematic behavioral component, the small thread of rationality that all individuals have in common" (Roll 1986, 199).

In fact, Roll believes that markets are populated by individuals who often make grossly irrational judgments and he feels that this assertion is backed by a wealth of evidence from psychology. A corporate takeover represents an individual decision that managers make no more than a few times in their careers. With little or no opportunity to learn from previous experience, they may convince themselves that their own valuation of target firms is more correct

than the market's valuation. Thus, the managers may be overcome by egotism. "If there are no aggregate gains in takeover, the phenomenon depends on the overbearing presumption of bidders that their valuations are correct" (Roll 1986, 200).

CHAPTER III

LITERATURE REVIEW

Returns to Acquired Firm's Shareholders

A great deal of empirical evidence suggests that target firm shareholders reap substantial gains in takeover battles. Ruback (1982) investigated the 1981 DuPont takeover of Conoco. As a result of this takeover battle, Conoco shareholders realized a 71 percent increase in the value of equity, while the shares of DuPont declined by almost ten percent. Ruback reports that gains of this magnitude are unusual but not unprecedented.

Jarrell, Brickley, and Netter (1988) support this contention in a review of the empirical literature. They find that target company shareholders enjoy substantial premiums over the prebid market price. These premiums increased from an average of about 19 percent in the 1960s to 30 or 35 percent in the 1970s and 1980s. Jensen (1988) suggests that takeover premiums averaged about 50 percent in the late 1980s.

Returns to Acquiring Firm Shareholders

The benefits of takeovers for bidding firm shareholders are much less obvious. Firth (1980) examines shareholder returns to bidding and target firms in the United Kingdom. The results suggest that target firm shareholders and bidding firm managers benefit from takeovers. However, acquiring firm

shareholders suffer losses. He examined a total of 563 offerors (bidders) and 486 offerees (targets) in the period between 1969 and 1975. Using standard event study methodology, he cumulated abnormal returns for bidding firms around the date of the bid. In the month of the offer, successful bidding firms experienced statistically significant abnormal returns. Moreover, he demonstrates that the losses thus incurred are sustained up to three years later. In contrast, unsuccessful bidders have statistically significant positive abnormal returns in the 12 months subsequent to the bid. These results suggest that the British markets have a decidedly pessimistic view of takeovers from the standpoint of the bidding firm.

Moreover, Firth presents evidence suggesting that the losses to acquiring firm shareholders outweigh the gains of acquired firm shareholders. He concludes that this evidence is consistent with takeovers being motivated by maximization of the utility of acquiring firm managers rather than maximizing the value of the acquiring firm.

The market reaction to American takeover bids is more ambiguous. Ruback's (1982) investigation of the 1981 DuPont takeover of Conoco documents significant negative abnormal returns for the bidding firm. During the takeover battle, the price of Dupont shares declined by almost ten percent, amounting to a total reduction in market value of 789.1 million. Ruback is not able to identify a rational value-maximizing motive for the takeover and finally concludes that Conoco managers must have provided inside information to

Dupont executives. He guesses that this information provides the economic justification for the purchase. Certainly, the capital markets did not find a reason to believe that Conoco was worth the price paid for it.

Asquith (1983) provides a somewhat different perspective. He examined the entire merger process from 480 trading days before a merger bid until 240 trading days after the bid. The sample includes both successful and unsuccessful merger bids between 1962 and 1976. The results suggest that increases in the probability of a successful merger benefit the stockholders of the target firm. Decreases in the probability of a successful merger hurt both target and bidding firm shareholders.

The Williams Amendments, which became law in 1968 and 1970, required disclosure of certain information about the bidding firm, including its identity, means of financing, and the purpose of the proposed acquisition. If the tender offer is a public bid this information must be filed before the bidder solicits shares. These regulations had the effect of making a tender offer more difficult to consummate and also increased the likelihood of competing bids.

Schipper and Thompson (1983a) examined the impact of acquisitions activity on firm value by looking at firm acquisition programs. They find significant positive abnormal returns associated with the announcement of acquisition programs. In a second paper (1983b), they investigate the economic impact of several merger and acquisition regulatory measures enacted between 1966-70, notably the Williams Amendments. They

hypothesize that if market agents expect the regulations to reduce the estimated net benefits associated with future acquisition programs then the value of firms with acquisitions programs would decline. An examination of the effects of the announcements of these regulatory measures on the abnormal returns of 39 firms with established acquisition programs provided support for this hypothesis. Public release of information about the pending measures was associated with negative abnormal returns for the firms in the sample.

Malatesta (1983) examined a sample of mergers taking place between 1969 and 1974. His results are similar to those reported by Firth (1980) for British firms. He suggests that the long-run wealth effect of mergers is significantly negative for acquiring firms. The immediate impact of mergers, as measured by total dollar returns, is highly positive for acquired firms, but highly negative for acquiring firms.

Lease, McConnell, and Mikkelson (1983) test the hypothesis that the future payoffs associated with a firm's common stock depend upon whether ownership of the stock also conveys control of the corporation. They find that there are both benefits and costs associated with corporate control.

Dennis and McConnell (1986) examine returns to all classes of merging firms' senior securities as well as to common stock over the period 1962 to 1980. The results suggest that the common stockholders, convertible and non-convertible preferred stockholders, and convertible bondholders of acquired companies receive statistically significant abnormal returns in mergers.

Acquired companies' non-convertible bondholders and acquiring companies' convertible bondholders, nonconvertible preferred stockholders, and non-convertible bondholders show no statistically significant gain or loss. Results for acquiring firm stockholders depend upon the time period used to measure returns. However, the authors maintain that there is no evidence that acquiring firm stockholders lose in mergers. Since acquiring firm shareholders do not lose and acquired firm shareholders gain, they maintain that mergers are wealth-increasing events that are consistent with the synergy hypothesis.

Allen and Sirmans (1987) investigate the effects of REIT mergers on the wealth of acquiring firm shareholders. In a sample of 52 successful mergers during the 1977-1983 period, they found positive and significant two day abnormal returns of 5.7 percent. After eliminating possible sources of this gain, such as tax loss considerations, they conclude that the possibility remains that the gains to acquiring shareholders come from the market's perception that the REITs assets will be better managed after the acquisition.

Salter and Weinhold (1988) focus on the ways in which takeovers can enhance or detract from the long-term performance of bidding firms. The authors suggest that in spite of some evidence that takeovers reduce bidder wealth, there are many opportunities for the managers of bidding firms to create real economic value. However, these tend to be one-shot opportunities such as changes in target organization. They may lead to higher, but not increasing returns.

Magenheim and Mueller (1988) suggest that the inconsistent results regarding bidding firm gains in takeovers stems from the different methodologies that individual studies have used. Researchers have asked different questions about the performance of bidding firm shares and have thus arrived at different answers. Their research demonstrates the sensitivity of the results obtained to the methodology used.

Jarrell, Brickley, and Netter (1988) present evidence suggesting that abnormal returns for bidding firms have declined sharply since the 1960s. In a 20 day test period for a sample of 405 tender offers, abnormal returns averaged a statistically significant 4.4 percent in the 1960s, fell to a statistically significant 2.87 percent in the 1970s, and averaged a statistically insignificant -.04 percent in the 1980s.

There is no consensus in the literature as to whether bidding firms gain on average or lose on average. Apparently, average returns have fallen as new regulations require increased disclosures about the intentions of prospective bidders. However, if the average abnormal return for bidders is around zero or slightly negative, some firms must experience increases in share prices at the time of the bid, while others experience share price decreases. The market will evaluate each bid on its merits, and the evaluation may be affected by the motives of bidding firm managers.

Research on Bidding Firm Motives

Amit, Livnat, and Zarowin (1987) attempt to classify mergers and acquisitions on the basis of acquiring firm motives. They define motives as the expected gains from the acquisition. They classify target firms into three categories; highly liquid target firms which are assumed to have large amounts of free cash flow, target firms that choose mergers as alternatives to bankruptcy and are assumed to have low free cash flow, and those targets that fall in between these extremes of liquidity. They also control for method of payment and for whether the takeover is a merger or a tender offer.

The free cash flow theory predicts that the target firm with free cash flow will become more profitable after the takeover as the excess cash is distributed or invested in positive net present value investments. The researchers suggest that this gain will probably be split between the bidding and target firm shareholders on the basis of relative bargaining power at the time of the takeover bid. They suggest that stockholders of highly liquid target firms will obtain the greatest abnormal returns because they are more likely to have larger amounts of free cash flow than less liquid firms and thus will attract more bidders.

They find that target abnormal returns are highest when targets are highly liquid and lowest when the target is nearly bankrupt. Most of the gains seem to go to target firm shareholders, which is consistent with previous research. These findings provide some support for Jensen's free cash flow

hypothesis, but one would expect that returns would be lower when the bid is for a firm that is nearly bankrupt rather than for one that is cash rich.

Lehn and Poulsen (1989) investigate a sample of firms that went private. They find that shareholders reap large gains from these arrangements and present results suggesting that the gains can be explained by the free cash flow hypothesis. They find that the ratio of a firm's free cash flow to the market value of equity is a significant predictor of the likelihood that the firm will go private. This variable is a marginal predictor for going private transactions between 1980 and 1987, but is highly significant for the subperiod of 1984 to 1987.

Beckenstein (1979) attempts to discriminate merger motives by means of macro-economic variables. He employs several macro-economic variables including the absolute yearly change in the S&P 500 Index, the annual change in the gross national product, and the level of merger litigation. He develops various models in which the annual number of mergers (Merger), and the total assets acquired in annual mergers (Assmer) were the dependent variables. The S&P 500 variable was found to be a highly positive predictor of merger activity. Beckenstein suggests that this supports the managerialism or empire building thesis although he does not believe that the relationship is strong enough to support a principal cause theory.

Groff and Wright (1989) suggest that firms subject to the disciplinary strictures of the market for corporate control (likely to be taken over) are more

likely to engage in self-serving accounting policy choices. He tests the hypothesis that firms which become takeover targets are more likely to choose manager-benefiting accounting policies than did firms in a matched sample. The results are consistent with this hypothesis. These results lend some support to the disciplinary hypothesis in that poorly managed firms try to camouflage their weakness with liberal accounting methods.

Morck, Shleifer, and Vishny (1989) present evidence suggesting that some types of bidders systematically overpay for acquisition targets and thus generate negative abnormal returns for bidding firm shareholders. They look at two issues related to managerial motives; the desire to buy growth and the desire to diversify. They also examine the relationship between bidders' past performance and the returns from acquisitions.

They identify three possible situations in which managers might be willing to overpay. First, because managers have undiversifiable human capital tied up in the firm, they have incentive to diversify the firm and reduce their personal risk. Second, managers have incentives to enter new lines of business to insure the life of the firm and their own jobs, even when the logic of the situation dictates shrinkage or liquidation. Third, the manager may have incentive to enter new lines of business when the present performance of the firm is unsatisfactory.

The researchers conclude that bad acquisitions are driven by managerial objectives and are not just a manifestation of hubris. Unrelated diversification

and buying growth reduce the returns to acquisitions. Moreover, bad managers appear to make bad acquisitions. These results support the contention that some acquisitions are simple empire building. The market appears to recognize this motive and penalize the share prices of the bidding firm. Finally, the results suggest that unrelated diversification was much more heavily penalized in the 1980s than in the 1970s.

The researchers do not use the traditional return variable, (the percentage change in the bidder's value) because the same acquisition can appear better or worse to different firms that start with a larger or smaller pre-acquisition equity base. Instead they use the ratio of the change in market value of the bidder to the acquisition price of the target. They suggest that this ratio is equivalent to the ratio of the target's net present value to its price.

The results suggest that the mean value of bidder returns in 329 acquisitions is -.65 percent. Only 41.6 percent of the returns are positive. They find, in line with much previous research, that the bidder's overall return is not significantly different from zero. They try to explain the returns through a cross-sectional regression using three variables; the growth rate of the target, the past performance of the bidding firm, and the relatedness of the acquisition.

Past performance is measured by three-year equity growth relative to the particular industry. Whether measured by equity growth or income growth relative to industry, the results suggest that the past performance of the bidding firm is a very significant explanatory factor. An industry-adjusted change in the

log of equity value of zero equals median equity growth, while a value of one means growth at a level of the 95th percentile. When the industry-adjusted three-year change in the log of bidder equity value goes from zero to one, the average return on the acquisition rises by about nine percent.

These results suggest that better managers make better acquirers and are consistent with both the disciplinary and the empire building hypotheses. The market may believe that an efficient management team (identified through equity and income performance) can put the assets of the target to more efficient use. A less efficient management team is perceived as empire builders.

Lang, Stutz, and Walkling (1988) suggest that these findings suggest a re-interpretation of the gains involved in bustup takeovers where the intent is to sell the components of the acquired firm. Part of the gain in this process probably arises from the utilization of more efficient management for the components. Part of the gain may also arise from the willingness of other non-value maximizing managers to buy pieces of the target for their own empire. The raider allows each bidder to overpay for the piece of the target firm that he or she wants, and can collect more than any single bidder would pay for the target. Thus, takeover premia are likely to overestimate the efficiency gains from these kinds of takeovers.

Bradley, Desai, and Kim (1983) suggest that the increase in wealth in takeovers arises from new information generated during the tender offer

process. However, they do not explain why bidders would initiate a bid if the new information emerges only after the initiation of the takeover. The theory assumes that managers of bidding firms possess the ability to produce information about the value of the target that is superior to information used by the capital markets.

The researchers find that the stockholders of unsuccessful bidding firms experience a significant wealth loss after an unsuccessful offer. This loss is due solely to the negative returns realized by firms which lose the target to rival bidding firms. Thus, if a firm makes an unsuccessful offer and the target is not acquired by another bidding firm, there is no wealth loss. But, if the offer fails because another firm successfully acquires the target, then the unsuccessful firm shareholders suffer a significant wealth loss.

The researchers suggest that these results demonstrate that successful acquiring firms possess specialized resources that allow for a profitable acquisition and that these resources will eventually be used to place the unsuccessful bidding firm at a competitive disadvantage. They assert that this is consistent with the tenets of the synergy theory.

Eckbo (1983) tests the hypothesis that horizontal mergers generate positive returns to both bidding and target shareholders because they increase the ability of rival firms to engage in collusion. Through a comparison of horizontal and vertical mergers, he finds little evidence suggesting that merger gains emanate from collusion.

Singh and Montgomery (1987) suggest that related acquisitions have greater total dollar gains than unrelated acquisitions, although acquired firms have greater gains than acquiring firms. These results seem to support the synergy theory.

Bradley, Desai, and Kim (1988) define synergistic gains from a successful tender offer as the sum of the change in the wealth of the stockholders of the target and acquiring firms. The sample includes 236 successful tender offers between 1963 and 1984. They calculate the abnormal returns to both firms over an 11-day event window. The total of both firms' cumulative abnormal returns is defined as the increase in synergistic wealth.

They conclude that successful tender offers result in significant synergistic gains and lead to a more efficient allocation of economic resources. The stockholders of both firms realize significantly positive abnormal returns, but the target captures the lion's share of the gains. The results also suggest that the rate of return and total dollar gains have increased over time for target shareholders and decreased for bidding firm shareholders. In the most recent subperiod investigated (1981 through 1984), bidding firms actually suffer a significant abnormal loss. The researchers attribute the increased bidding firm losses to unfavorable regulation against acquiring firms beginning with the passage of the Williams Amendment in 1968.

Lichtenberg and Siegel (1987) suggest that the least productive plants in an industry are the ones most likely to be subjected to a change in ownership.

Following this change, these plants tend to have an above-average increase in productivity. Between 1974 and 1980, the productivity growth rate of plants that had ownership changes was about nine percent higher than those that did not. These results lend some support to the disciplinary hypothesis

Lichtenberg and Siegel (1989b) present additional evidence suggesting that changes in ownership are also associated with significant reductions in administrative overhead. The reduction is measured by the ratio of administrative to plant employees. They conclude that this change is a major source of takeover related productivity gains. Again, these results support the disciplinary hypothesis.

Lichtenberg and Siegel (1989a) use Census Bureau Data Sets to assess the productivity of firms involved in leveraged buyouts (LBO) between 1981 and 1986. They suggest that these firms had significantly higher rates of total factor productivity than other firms in the same industry. They found that the productivity increases generated by LBOs was much higher than for firms subjected to other kinds of ownership changes. Labor and capital employed both declined relative to industry averages, but at a slower rate than they did before the LBO. Moreover, plants involved in LBOs are less likely to subsequently close than other plants. The apparent motive for and result of these LBOs was discipline.

Travlos (1987) suggests that the market reaction to tender offers and mergers may have nothing to do with managerial motives, but may arise strictly from the

signal given by the method of payment. He explores the impact of the method of payment on the common stock prices of bidding firms at the announcement of takeover attempts. His results suggest that bidding firms suffer significant losses in pure stock exchange acquisitions but experience normal returns in cash offers.

Huang and Walkling (1987) also find different market reactions for tender offers and mergers and demonstrate that the method of payment explained differences in abnormal returns around the takeover date. The researchers hypothesize that these results can be explained by several possible theories. First, if there is information asymmetry, the method of payment may signal valuable information to shareholders that is not fully incorporated in pre-announcement share prices. Managers of bidding firms will prefer a cash offer if they believe their firm is undervalued and a stock offer if they believe it is not. The action chosen would maximize value for existing shareholders.

The hypothesis also explains the difference in empirical results between studies on mergers and tender offers, since most tender offers are financed via cash, whereas most mergers are consummated by an exchange of stock. The different empirical findings for mergers and tender offers may arise exclusively because of the different signals sent to the market by the method of payment. These results suggest that research into merger motives should control for the method of payment.

Another possible reason for the results may be tax factors, since cash and stock exchanges have different tax consequences. Also, the combination of two firms without perfect risk correlation may decrease bankruptcy risk. This course of action is not a value maximizing strategy for stockholders who can diversify their own portfolios. Such a risk-reducing strategy might simply transfer wealth from stockholders to bondholders and to managers who have undiversifiable human capital tied up in the firm.

Prediction of Takeover Targets

Wansley, Roenfeldt, and Cooley (1983) use discriminant analysis to determine whether an investor can predict takeover targets and earn abnormal returns. Their results were not encouraging. Rege (1984) also concludes that studies attempting to predict takeover targets using accounting ratios have met with mixed results.[1] From this examination of previous research, Rege concludes that historical accounting information cannot predict takeover targets.

Palepu (1986) investigates statistical models that purport to predict takeover targets from public data. His own study purports to correct certain methodological flaws found in previous research, principally the use of non-random samples. His prediction model is statistically significant, but its

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[1]Rege cites several of these studies. Simkowitz and Monroe (1971) looked at 24 different accounting ratios. Stevens (1973) used 20 different ratios. Each of these studies based on data one year or less before the takeover found significant results. Singh (1971) and Laurent and McCorkindale (1975) examined periods longer than one year and found no financial characteristics of firms that predict the likelihood of being taken over.

explanatory power is small. The model is not a useful predictor of takeover targets.

Conclusion

Evidence as to whether or not mergers are economically productive is ambiguous. There is little doubt that target firm shareholders in tender offers reap substantial gains from the takeover premium. However, there is no convincing evidence that takeovers create new wealth through the prospect of discipline, restructuring, or a proper use of free cash flow. The only certainty is that assets are transferred from the bidding corporation to the shareholders of the target firm. Existing research provides no direct evidence suggesting that bidding firms are more efficiently managed than the targets they seek to acquire.

The evidence in regard to gains for bidding firm shareholders is contradictory in some respects. Research suggests that these gains, if they do exist, are quite small and have decreased in recent years because of more stringent disclosure requirements in regard to tender offers. Krinsky, Rotenberg, and Thornton (1988) synthesize empirical research on takeovers and arrive at a similar conclusion. They suggest that target firm shareholders undoubtedly benefit in takeovers. For bidding firms, the results are mixed, but some evidence suggests that the returns to bidding firms may be negative. Certainly, they are not clearly positive.

CHAPTER IV

METHODOLOGY

Sample Selection

A sample of tender offers for the period between 1978 and 1988 was compiled from information published in the Mergerstat Review. The Mergerstat Review listed 257 tender offers for this period. To be included in the final sample, both the bidding and target firms had to have complete data on the Standard and Poor's Pcplus CD-ROM database and on the tape of daily stock prices issued by the Center for Research in Security Prices (CRSP). A total of 91 tender offers met these criteria. There is no reason to suppose that the exclusion of firms because of missing data would lead to a systematic bias in the sample. If this is not the case, then the selection bias would constitute a limitation for this research.

Comparison of Bidding and Target firms

Takeover theories imply that bidding and target firms should exhibit certain financial characteristics. For instance, the disciplinary hypothesis implies that poorly managed firms are more likely to become takeover targets and that well-run firms are more likely to make tender offers. Thus, the disciplinary hypothesis suggests that an examination of the earnings and

financial ratios of the sample firms should support the contention that bidding firms are better managed and more efficient than target firms.

Similarly, the free cash flow hypothesis suggests that the sample of target firms ought to have higher free cash flows than the sample of bidding firms because the theory predicts that firms with free cash flow are more likely to become takeover targets. The empire building hypothesis would receive support if the sample of bidding firms does not appear to be better managed in terms of accounting data or has higher free cash flow than the sample of target firms.

In order to assess which, if any, of the theories explains takeovers, one needs to assess the relative efficiency of both the bidding and target firm. The ideal way to effect this comparison would be to compare each bidding and target firm's operating efficiency with the other companies in the particular firm's industry. Unfortunately, it is difficult to obtain reliable historical industry data for all of the firms in the sample. Instead, this research compares the financial characteristics of the sample of target firms with the financial characteristics of the sample of bidding firms to determine if the systematic differences implied by the various theories actually exist. Do bidders systematically differ from targets in size, profitability, debt structure, growth, and other financial characteristics as predicted by the various takeover theories?

The Event Study

In order to assess the market reaction to the tender offer, the market model is used to estimate the risk adjusted returns accruing to the bidding firm's securities at the time the takeover attempt becomes public knowledge. Watts and Zimmerman (1986, 33) describe the market model as simply the statistical description of the relationship between the rate of return on asset i $(r_{i,t})$ and the rate of return on a market portfolio of assets $(r_{m,t})$. The model assumes that the joint distribution of the rate of return on the asset and the market portfolio is bivariate normal. It can be symbolized as:

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + e_{i,t,} \tag{1}$$

where

$\beta_i = cov(r_{i,t}, r_{m,t})/\sigma^2(r_{m,t}),$

$\alpha_i = E(r_{i,t}) - \beta_i E(r_{m,t}),$

$e_{i,t}$ is a disturbance term with $E(e_{i,t}) = 0$, and

$\sigma^2(e_{i,t}|r_{m,t}) = \sigma^2(e_{i,t}).$

Watts and Zimmerman (1986, 33) point out that the market model equation arises exclusively from the bivariate normal assumption. It does not require that the portfolio consist of the market portfolio of assets because the same linear relationship holds between the rate of return on asset i and the rate of return on any portfolio p if the joint distribution of $r_{i,t}$ and $r_{p,t}$ is bivariate normal.

However, empirical studies in accounting and finance assume that the rate of return on the market portfolio ($r_{m,t}$) captures the effect of variables that affect the rates of return of all assets and the disturbance term $e_{i,t}$ captures variables that affect only the rate of return on asset i. The disturbance term, which is presumed to capture the effects of information on the prices of individual firms, $e_{i,t}$, is termed an abnormal rate of return (Watts and Zimmerman 1986, 33).

Although the market model lacks a well-developed theoretical base, it has proven to be quite robust in a wide range of accounting and finance empirical studies. Brown and Warner (1980, 1985) present evidence obtained through simulation studies demonstrating that the simple market model does well under a variety of conditions. They conclude that even the use of daily return data, which often deviates from the normality assumption, presents few problems. They suggest that standard procedures are typically well-specified even when special daily data characteristics are ignored (Brown and Warner 1985, 3).

To obtain estimates of abnormal returns around takeover announcement dates, estimates were obtained of α_i and β_i for each firm in the sample. The estimation of equation one for each bidding firm, using daily returns, where $r_{i,t}$ and $r_{m,t}$ are taken from data available on the files of the Center for Research in Security Prices at the University of Chicago (CRSP).

The period over which these parameters can be estimated varies across studies and appears to be fairly arbitrary. It should be long enough to get an accurate measurement of the slope and intercept, but not so long that there is significant danger that these parameters will change. Following the methodology of Brown and Warner (1985), the estimation period consists of 239 trading days before the test period.

The test period should be constrained to a short period around the time information about the takeover bid becomes public. The longer the test period, the greater the chance that news other than the event of interest will affect the firm's security returns. However, the test period should be long enough to capture the market's reaction to the takeover announcement.

An examination of the behavior of stock prices of firms involved in this sample of takeovers suggests that the main change in price occurs on the day before and the day of the announcement of the tender offer in the Wall Street Journal. A two-day event window should be adequate to test the market's assessment of the takeover.

Following the methodology outlined by Brown and Warner (1985), day "0" is specified as the date the Wall Street Journal publishes the announcement of a takeover. For each bidding firm, an estimation and a test period was constructed consisting of 241 daily return observations for the period around the takeover, starting at day -241 and ending on the date of the takeover

announcement. The first 239 days in this period designates the estimation period, and the following 2 days (-1 through 0) designates the test period.

For every security for each day in the test period, an expected or predicted return was calculated by using the market model estimates of α_i and β_i obtained from the estimation period OLS regression. An abnormal return ($u_{i,t}$) is simply the difference between the predicted return and the actual return and can be symbolized as follows:

$$u_{i,t} = r_{i,t} - \hat{r}_{i,t},$$

where,

$u_{i,t}$ = the abnormal return,

$r_{i,t}$ = the actual return for the event day,

$\hat{r}_{i,t}$ = the predicted return for the event day.

Each of the test period abnormal returns was then aggregated into a cumulative abnormal return (CAR) according to the formula:

$$CAR_i = \Sigma \, u_{i,t},$$

where,

CAR = cumulative abnormal return.

The CAR stands as a surrogate for the information content of the news release. As Foster (1986, 405) points out, information content in this particular context means that the news release leads to a revision of the distribution of security returns. Foster also suggests that there are four possible outcomes when using the CAR measure in this way:

1.   News release leads to a revision in the security return distribution and the CAR measure reports a significant effect;

2.   News release does not lead to a revision in the security return distribution and the CAR measure reports no significant effect;

3.   News release leads to a revision in the security return distribution, but the CAR measure reports no significant effect;

4.   News release does not lead to a revision in the security return distribution, but the CAR measure reports a significant effect (Foster 1986, 405).

Obviously, the first two situations represent the desired outcomes while situations three and four most usually result from what have been called confounding events. Foster (1986) suggests that outcomes one and two are most likely to result from research designs that include many observations from a cross-section of firms over different time periods These criteria fit the sample of firms in this study. Therefore, the problem of confounding events should be eliminated or mitigated by the use of cross-sectional data in this research.

The Second Equation

The main purpose of this research is to determine whether the capital markets use accounting information to assess the probable motives of bidding firm managers in takeover transactions. Hence, a cross-sectional regression model is developed that uses the 2-day cumulative abnormal returns (CARs) calculated in stage one as the dependent variable. The independent variables that explain the variance in the CARS are generated by the theories about the

managerial motivations behind takeovers and consist of published accounting information about the bidding and target firms.

The research postulates that there is a functional relationship between accounting variables of bidding and target firms and the risk-adjusted change in the bidding firm's share price cumulated in a test period around the takeover announcement. The relationship can be expressed by the equation:

$$CAR = f(VAR1, VAR2 ..., VARn).$$

Lanen and Thompson (1988) point out a significant limitation of some models wherein the change in firm stock price at the time of a policy change is related to firm characteristics. They suggest that the market reaction is dependent upon both the expected benefits of the policy decision and the probability that the market has to some extent anticipated the policy decision because of the particular firm characteristics. In the case where the prior probability (market anticipation) differs across firms because of cross sectional differences in firm characteristics, the researchers demonstrate "...that the sign of association between abnormal stock value changes and observable variables depends upon details of the market setting that lie outside the theory linking these variables to net cash flow" (Lanen and Thompson 1988, 313).

The implication of this finding is that unsuccessful attempts to find an association between abnormal stock price returns and firm characteristics at the time a policy change is announced do not necessarily provide evidence against the underlying theories being tested. The researchers suggest that these

conclusions apply in situations where observable firm characteristics affect both the expected firm value and the prior probability of the action in the same direction. These findings should not affect the results of this research because of the very low probability that the market can predict which particular firms will bid for other particular firms. Thus, prior probabilities should not significantly distort the results obtained from the cross-sectional regression model.

Model Selection

The various takeover theories imply that many different firm specific characteristics of bidders and targets affect the market reaction to the tender offer. The factors affecting market reaction could be size, profitability, debt structure, dividend payment or other firm characteristics. Rather than generate a model for each particular theory, I use a step-wise regression to select the "best" explanatory model from a set of possible predictor variables. An analysis of the model generated by the step-wise regression may suggest which, if any, theory is supported. NCSS, the statistical software used for this analysis, includes a stepwise procedure for variable selection. This procedure adds and deletes variables until no further addition or deletion improves the root mean squared error more than one percent.

Appendix A provides definitions for all the financial variables used. When "B" begins the variable name it is the defined variable for the bidding firm. Similarly, a "T" at the beginning of the variable name denotes a target firm variable. In addition, a growth rate was generated for each variable by

fitting an ordinary least squares line to the data for the three years before the year of the takeover announcement. The growth variable is denoted by a "G" at the end of the variable name.

Control Variables

It is likely that factors other than the market's assessment of takeover motives will affect the bidding firm's stock price. Therefore, control variables were included in the cross-sectional step-wise regression to control for this possibility. One such factor is the takeover premium offered by the bidding firm. The premium is the percentage excess of the bid price over the pre-announcement market price. All firms must pay a premium to attain control through a tender offer, regardless of the motivation underlying the bid. The variable PREMIUM is intended to control for this factor. It is the per share bid price for target firm shares less the target firm share price one month before the tender offer, all of which is divided by target firm share price one month before the tender offer. The sign of PREMIUM should be negative because if all other factors are held equal, the market would react more negatively to the acquiring firm's bid as the premium paid increases.

Another possible intervening variable is the method of payment for the target firm. Travlos (1987) presents evidence suggesting that the method of payment in mergers affects the market reaction. Some acquisitions are paid for with cash and others by the issuance of new stock or a combination of stock and securities. Bidding firm managers possess inside information about the

prospects of the firm. This private information may cause firm managers to believe that the firm's stock is either underpriced or overpriced by the market. The market "knows" that managers possess inside information and will watch for actions that signal management beliefs about future stock prices. One possible signal is the issuance of new stock. If managers believe that stock is overpriced, they may act on this belief by issuing new stock. The market, in turn, will regard the issuance of new stock as bad news and the share price of the firm will fall. Conversely, the payout of cash to finance a new asset may mean that management believes that the firm's stock is underpriced. This would be interpreted by the market as good news and share prices would rise.

Thus, a positive or negative reaction at the time of a takeover announcement may result from the signaling effects of the method of payment rather than a reaction to the takeover per se. The dummy variable METHPAY assumes a value of one if the tender offer is expressed in terms of cash and zero if it is stated in terms of securities or a combination of cash and securities. It should control for the possibility that the method of payment is influencing the market reaction at the time of the takeover. The sign of METHPAY should be positive because a cash bid would send the signal that bidding firm managers believe that the stock is underpriced.

Disciplinary Hypothesis Variables

The disciplinary hypothesis suggests that firms become takeover targets because their assets are either managed inefficiently or diverted towards

maximizing the personal utility of the firm's managers. If the disciplinary hypothesis is correct, one would expect target firms to be relatively less efficient than bidding firms. Thus, the bidding firm can justify the takeover premium on the grounds that there are substantial gains to be realized from the target by eliminating inefficiencies.

One possible method of testing the disciplinary hypothesis is to examine the differential market reaction to a tender offer that is either hostile or friendly. The initial tender offer for a target is generally hostile from the standpoint of target firm management. If the takeover effort were friendly the bidding firm managers would probably negotiate directly with target firm management for a merger. The threatened target firm managers often seek to ward off the unfriendly suitor by casting around for another firm that will agree to tender for the target firm but would be more friendly to the threatened target management. This new entrant into the takeover fray is the so-called White Knight.

The implication of this competition is that the White Knight is less interested in disciplining the target managers than the original hostile bidder and may have no motive for the bid other than empire building or hubris. Therefore, the market should react more positively to hostile bids than to the bids of White Knights. The variable H/WK is defined as one if the bid is hostile and zero if the bidder is a White Knight. The disciplinary hypothesis suggests that the sign of the coefficient would be positive when H/WK is regressed against CAR.

Other accounting measurements are developed to determine whether the market takes into account the relative efficiency of the bidding and target firms. A common measure of firm efficiency is Return on Investment (ROI). ROI is defined as net income before extraordinary items divided by average total assets. This ratio is intended to measure the efficiency with which the firm's total assets are employed. The higher this measure the more efficient the firm in a relative sense (Foster 1986, 67).

If the disciplinary hypothesis is applicable and ROI is a good proxy for firm efficiency, investors may use this ratio to evaluate the relative efficiency of the firms when assessing the value of the acquisition to the bidding firm at the time of the tender offer. If the bidding firm is relatively efficient and the target firm relatively inefficient, one would expect the market to react favorably to the announcement of the takeover.

Thus, the disciplinary hypothesis predicts that the expected sign of the BROI coefficient will be positive. The higher the bidding firm ROI, the more favorable should be the market's assessment of the takeover bid. Conversely, the expected sign of the TROI variable is negative. The more inefficient the target firm management, as indicated by a lower ROI, the greater the potential gains from ousting the old managers and improving operational and marketing efficiency. Conversely, the higher the target firm ROI, the lower potential gains from discipline.

The difference between the bidding and target firm ROI may also be a useful predictor variable. ROIDIF is defined as the difference between the bidding firm ROI and the target firm ROI in the year before the takeover. It is intended to measure the relative operating efficiency of the bidding and target firms. The disciplinary hypothesis suggests that the higher the difference between the two, the greater are the potential gains realized through the takeover and vice versa. The expected sign of ROIDIF is positive.

Earnings per share (EPS) is another purported accounting measure of efficiency. If the disciplinary hypothesis is true and bidding firms are more efficient than targets, the EPS of the bidder should be relatively high, suggesting an efficiently managed and profitable firm. The higher the bidding firm EPS in the years before the tender offer, the more positive should be the market reaction to the takeover bid and vice versa. Conversely, the market should react negatively to a tender offer when the target firm has high EPS because an efficiently managed and profitable target firm means few potential gains from discipline. Thus, the expected sign of BEPS is positive while TEPS is negative.

If the bidding firm is better managed than the target, bidders may also be growing at a faster rate than target firms. If the purpose of the takeover is discipline, the market should react more positively to the tender offer if the bidding firm is growing rapidly and the target firm is not. SALEGR is the percentage change in sales for bidding and target firms in the three years

before the takeover. The expected sign of this variable is positive for bidders and negative for targets. Another possible growth proxy is the rate of increase in total assets (ASSETG). The rate of growth for this variable is estimated by means of the slope of a least squares line fitted to the firm's total assets for the three years before the tender offer.

Yet another possible indicator of whether discipline or empire building motivates the takeover may be found in the shareholder characteristics of bidding and target firms. The empire building hypothesis suggests that bidding firm managers are maximizing their own personal utility by instigating takeovers. Jensen and Meckling (1976) suggest that these agency costs are least likely to occur when the personal interests of the firm's managers are closely aligned with those of the firm's shareholders.

Management interests are more likely to be aligned with shareholder interests when the firm is closely rather than widely held. Dhaliwal, Salomon and Smith (1982) examined the question of whether manager controlled firms are more likely than owner controlled firms to adopt accounting methods that increase reported earnings. The distinction between manager and owner controlled firms was fairly arbitrary. A firm was classified as owner controlled if one shareholder owned ten percent of more of the voting stock and exercised active control, or if one shareholder owned 20 percent or more of the voting stock. The researchers found a weak relationship between type of control and the accounting method chosen.

The proxy chosen for degree of control may not have been appropriate because of the arbitrary cutoff points chosen to determine whether the firm is owner or manger controlled. Another possible indication of whether the firm is widely or closely held may be the average number of shares per shareholder. High average shares per shareholder suggests that the firm is more closely held and vice versa. AVGSH is total shares outstanding at the end of the year preceding the tender offer divided by the total number of shareholders. An advantage of using this proxy is that it is continuous rather than discrete and may therefore do a better job of showing systematic tendencies. Another advantage of using this variable is that the data for it is available on the Compustat PcPlus database.

Finally, the relative size of the bidding and target firms may be a factor in whether the market evaluates the takeover as discipline or empire building. There is no established theory behind this supposition, but intuitively one might suspect that takeovers wherein large bidding firms swallow much smaller targets may be motivated by empire building. This belief may be inspired by the history of the rise of great empires which arise by just this process. Also, it is fairly easy for a large bidder to take over a smaller target whether or not the merger is economically sound.

The way in which tender offers are financed may provide a theoretical rationale for the importance of relative firm size. The bidding firm in a takeover battle almost always makes the tender offer in cash. Since many shares are

being purchased at a substantial premium over market value, the firm typically has to finance the takeover with an issue of bonds. Lenders are much more likely to take an objective look at the target's value to the bidder when the bidder is small in relation to the size of the target. They know that the assets of the bidding firm alone will never suffice to repay the new debt. They recognize that the acquired firm's assets must be worth what the bidding firm wants to pay or the debt will never be repaid. In this situation, a potential takeover motivated strictly by empire building or hubris would be unlikely to find lenders willing to provide the necessary financing.

When a large firm seeks financing to acquire a much smaller firm, the lenders are less likely to be concerned with the real value of the target to the bidder. Even if the motive is empire building, potential lenders realize that the relatively large bidding firm should be able to repay principal and interest from its own cash flows for the relatively small acquisition. There is less risk of default from an unproductive acquisition and therefore less stringent monitoring from the financial markets.

Thus, the market may use the relative size of the bidding and target firms as a way to discriminate between productive and unproductive takeovers. SIZE is the total assets of the target firm divided by the total assets of the bidding firm. If SIZE is equal to one, then the two firms are exactly equal in size of total assets. A SIZE value of less than one indicates that the target was smaller than the bidder. A SIZE value greater than one indicates that the

bidder was smaller than the target. The expected sign of SIZE is positive because there is less chance of an unproductive bid as the size of the target in relation to the bidder gets larger.

Free Cash Flow Variables

Free cash flow is an inherently unobservable variable because it is difficult for anyone outside the firm to determine whether management is hoarding cash in excess of the positive net present value investment opportunities available. Lehn and Poulsen (1989) provide a possible proxy for the existence of free cash flow. They investigate the source of stockholder gains in going private transactions with free cash flow as an explanatory variable. They develop a measure of free cash flow which relates undistributed cash to the firm's growth prospects.

$$CF = INC - TAX - INTEXP - PFDDIV - COMDIV,$$

where,

CF	=	undistributed cash flow;
INC	=	operating income before depreciation;
TAX	=	total income taxes (income tax expense), minus change in deferred taxes from the previous year to the current year;
INTEXP	=	gross interest expense on short and long-term debt;
PFDDIV	=	total amount of preferred dividend requirement on cumulative preferred stock and dividends paid on noncumulative preferred stock;
COMDIV	=	total dollar amount of dividends declared on common stock.

Lehn and Poulsen deflate this variable with the market value of the firm's equity. To this point, the variable provides only a rough measure of the cash that was earned and remains undistributed for the accounting period as a percentage of the market value of equity. However, Lehn and Poulsen suggest that a firm's free cash flow should be indirectly related to its growth prospects. Therefore they attempt to hold the firm's growth prospects constant by calculating the average annual percent increase in sales for the four years, three years, and two years immediately preceding the year in which the firm was taken private. This variable is intended as an admittedly crude proxy for opportunities for profitable reinvestment of cash flow.

The researchers point out that the problem with this cash flow variable is that it may measure the tendency of managers to use free cash flow in value reducing ways, such as embarking on aggressive acquisition strategies. If the acquisitions diminish firm value, the variable will appear to measure high growth prospects, when it actually measures the non-productive use of free cash flow.

One free cash flow proxy used in this research is similar to that developed by Lehn and Poulsen. However, the firm's undistributed cash flow is deflated by the firm's sales rather than the market value of equity. Sales is used in the denominator because the market value of equity is disproportionately influenced by changes in the overall market, introducing unnecessary noise into the variable. The sign of FCF1 should be negative for bidders and positive for targets. The higher the percentage of undistributed

cash flow as a percentage of sales, then the greater is the chance that the firm has free cash flow. If the bidding firm has free cash flow then the tender offer may be a case of empire building. If the target has free cash flow then the motive of the takeover may be the special case of the disciplinary hypothesis outlined by Jensen (1987). Another possible indication of free cash flow in the firm is whether or not FCF1 is increasing over time. Therefore, a growth variable for free cash flow is developed consisting of the ordinary least squares parameter estimate for the three years before the tender offer.

Another possible proxy for free cash flow may simply be the percentage of cash and short-term investments as a percentage of total assets retained by the firm (FCF2). The probability of the existence of free cash flow in the firm should increase as FCF2 increases, especially if the firm has a low growth rate as suggested by the growth proxies. Also, the growth rate of cash and short-term investments as a percentage of total assets may be a possible indicator of free cash flow, so the three-year least squares estimate of this rate is included as a possible predictor in the stepwise regression. The expected sign for both of these variables is negative for bidders and positive for targets.

The free cash flow theory also suggests that firms with free cash flow will have excess borrowing power. Jensen (1987) suggests that payment of cash to shareholders reduces managerial control of resources and potentially subjects managers to the monitoring of the capital markets. Retaining cash means that management may be able to finance projects internally and avoid

unwelcome outside monitoring by lenders. TD/TA is the debt to total asset ratio of the firm. If the free cash flow theory is true, targets should have systematically lower debt as a percentage of total assets, the ratio should be growing more slowly, and the market should react positively to low ratios for targets and high ratios for bidders.

Another possible clue to free cash flow may lie in the dividend payout policies of the firm. If the payout as a percentage of earnings is high, the firm is less likely to retain excess cash flow. The sign of this variable (DIVPAY) should be positive for bidders and negative for targets. If bidders have a policy of high dividend payouts, bidding managers are less likely to retain free cash flow and engage in empire building takeovers. However, if targets have a high ratio of dividend payout, the firm may not have excess cash flow and therefore the potential gains from inefficiency do not exist. Thus, the sign of TDIVPAY should be negative. The growth rate of each of these cash flow variables may also proxy for free cash flow. Therefore, a least squares growth rate was also computed.

Exploitation Hypothesis Variables

Testing the exploitation hypothesis is inherently difficult because of the problems associated with trying to determine the true value of an asset that has an observable market price. The chop shop approach advocated by LeBaron and Speidell (1987) is impractical for a large sample. However, some standard

financial analysis ratios may suggest whether the firm is overpriced or underpriced by the market.

The market-to-book ratio (MK/BK) is the ratio of the market value of the firm at the end of the year before the tender offer to its book value. It may provide a proxy for the existence of undervalued firms. The higher the market-to-book ratio, the less likely it is that the firm is underpriced. The expected sign of TMK/BK is negative because there is less likelihood that the target is underpriced by the market when this measure is high. BMK/BK may have implications for the disciplinary hypothesis. A high market to book ratio for the bidding firm may suggest that the market perceives the firm to be well managed, therefore, the expected sign of BMK/BK is positive

Dividend yield (DIVYLD) is the common stock cash dividends declared divided by the market price of a share of common stock. It also may provide an indication of whether the target firm is underpriced or overpriced by the market. The stock is more likely to be underpriced as the dividend yield gets higher. Therefore, the expected sign of TDIVYLD is positive. A least squares growth rate is also found for TMK/BK and TDIVYLD and included as possible predictor variables in the step-wise regression.

CHAPTER V

RESULTS OF THE RESEARCH

Comparison of Bidding and Target Firms

As previously discussed, the various takeover theories suggest that bidding and target firms should exhibit different financial characteristics. To determine whether there are systematic differences in financial characteristics between bidders and targets, the average mean difference was calculated for a selection of bidding and target financial variables suggested by the previously discussed theories. Non-parametric Mann-Whitney tests determine whether or not the differences were statistically significant.

The results presented in table 1 (all tables appear in Appendix B) suggest that bidding and target firms differ on many financial and operating characteristics. For instance, an examination of total assets and sales reveals that bidding firms are on average much larger than target firms. Average assets in the year before the tender offer are $2766.450 million for bidding firms and $1374.785 million for targets. The difference is statistically significant at a probability level of less than .01. Also, bidding firm sales in the year before the tender offer were much larger, averaging $2893.806 million, while target firm sales during the same period averaged only $1830.866 million. This difference is also significant at a probability level of less than .01.

However, an examination of the average amounts for all bidding and target firms results in a somewhat distorted view of what happens in many takeover attempts. The average size figures for all takeovers suggest that takeovers are a process whereby large bidders devour smaller targets. However, a somewhat different picture emerges when the relative size of each bidding and target firm is taken into account.

The SIZE variable is a measure of the relative size of each bidding and target firm. It is defined as target firm total assets divided by bidding firm total assets. A SIZE value of one indicates that the two firms are equal in size. A value of less than one indicates that the target firm is smaller than the bidding firm, and a value greater than one indicates that the target firm is larger than the bidder.

Table 2 provides descriptive statistics for the SIZE variable for the sample taken as a whole and partitioned for SIZE greater and less than one. Surprisingly, target firm total assets average 1.37 times larger than bidding firm assets. However, there are only 29 takeover attempts out of the full sample where the target firm assets are equal to or larger than the assets of the bidding firm. For these 29 data points, target firm assets are, on average, 3.64 times larger than the assets of the bidding firm. For the other 62 observations target firm assets average only 31 percent of bidding firm assets.

Table 2 also reports average cumulative abnormal returns (CARs) for the entire sample and for the sample partitioned according to SIZE greater and less

than one. Average CARs for the entire sample are slightly negative at -0.008. For the 62 observations where the bidder is larger than the target, they are even more negative at -0.01. For the 29 observations where the bidder was smaller than the target, the average CARs are only -.001. Evidently, the market reacts somewhat more favorably to takeover bids when the bidder is smaller than the target.

Profitability Characteristics of Bidders and Targets

Much accounting data attempts to measure firm performance. Return on Invested capital (ROI) is one of the standard ratios calculated from accounting data. It is defined as Income before Extraordinary Item divided by total invested capital. ROI is a measure of the efficiency with which total assets are employed by the firm (Foster 1986, 67). Assuming that ROI is a valid measure of firm efficiency and that the disciplinary hypothesis is correct, one would expect to find that bidding firms manage total assets more efficiently than targets and thus should have significantly higher ROIs than target firms.

A glance at Table 1 reveals that this is not entirely the case. The variable ROI measures the average return on investment for bidding and target firms in the three years before the takeover announcement. The mean of ROI for bidders is 9.4 percent while targets average only 8.1 percent. According to the accounting data, bidders earn, on average, 1.3 percent more on invested capital than do target firms. However the difference is not statistically significant.

When the sample is partitioned by SIZE, a somewhat different picture emerges. Table 3 indicates that average ROI is 10.5 percent for bidders when SIZE is greater than one, while the average for targets is only 6.8 percent. This difference, while apparently quite large, is significant at a probability level of only .1687. A one-tailed test would achieve accepted levels of significance. This difference does suggest that the smaller bidders may return substantially more on invested capital than the larger targets for which they bid.

When the sample is partitioned for SIZE equal to less than one, bidding firms appear to have no advantage in regard to Return on Investment. Table 4 indicates that the average ROI for bidders and targets in this subset is almost exactly equal at 8.9 and 8.8 percent respectively. This small mean difference is not statistically significant.

These results suggest that takeovers where the bidding firm is smaller than the target are more likely to have a disciplinary motive. The substantially identical average ROIs in the opposite case suggests that these takeover attempts may be motivated by empire building or hubris. Certainly, bidding firms in the majority of these takeover attempts do not have a systematic advantage in this accounting based performance measure. Assuming that ROI is a valid measure of firm efficiency, it is apparent that large bidding firms do not, on average, bid for less efficiently managed targets. However, smaller bidders may tend to bid for targets with much lower ROIs.

Earnings per share is another accounting measure of firm performance, but a comparison of bidding and target firm EPS appears to totally contradict the ROI results. EPS represents the mean primary earnings per share figures reported by bidding and target firms in the three years before the takeover announcement. The average primary EPS as exhibited in Table 1 is $1.086 for bidders and $2.284 for targets. This difference is significant at a probability level of less than .01 under the Mann-Whitney test. While bidders may produce a larger return to overall invested capital as suggested by the mean ROI figures, targets definitely produce a larger per share return for their stockholders than do bidders. These aggregate results in regard to EPS do not support the hypothesis that bidding firms are more efficiently managed than targets and in fact, targets appear to provide a higher level of return for shareholders.

When SIZE is greater than one, average EPS is $0.744 for bidders and $2.594 for targets. When SIZE is less than one targets enjoy less of an advantage, $1.246 for bidders and $2.139 for targets. All of these differences are significant at accepted probability levels under the Mann-Whitney test.

Surprisingly, when EPS is used as a measure of firm performance, bidding and target comparisons suggest the exact opposite of the results found when ROI is used as the measure of performance. Targets appear to be more profitable on a per share basis than bidders. This finding is consistent in the sample as a whole and also when it is partitioned according to SIZE. In fact, the target advantage is more pronounced when the bidding firm is small and

the target is large, the exact opposite of the ROI case. This puzzling inconsistency does not appear to trouble the market. In fact, Table 6 suggests that the market reacts more positively to the takeover bid when the bidding firm has low earnings per share and more negatively as bidding firm EPS increases.

<div align="center">Growth Characteristics</div>

Bidders appear to be growing much faster than targets. The variable SALEGR measures the percentage change in sales for firms in the three years before the tender offer. Bidding firm sales increased by 77.7 percent while target firm sales were up only 25.1 percent in the three years before the tender offer. This difference is not significant at a level of .2356 under the Mann-Whitney test. These results suggest that bidding firms may be growing faster than targets. It is possible that the higher average growth rate may arise as the result of aggressive acquisition strategies of some bidding firms rather than a high internal rate of growth.

When the sample is partitioned according to SIZE, it is apparent that most of the high growth rate of bidding firms is attributable to takeover bids where SIZE is greater than one. The average for SALEGR when SIZE is greater than one is 144.5 percent. For target firms it is only 20.6 percent. This difference is not statistically significant. When SIZE is less than one, the growth rate for bidders and targets is 46.4 and 27.2 percent respectively. This difference is also not statistically significant. These results suggest that when the bidding firm is smaller than the target firm, the bidding firm is likely growing

at a much faster rate, while the target firm's growth is relatively static. There is not much difference between the growth rates of large bidders and small targets.

Free Cash Flow Characteristics

One variable chosen as a proxy for free cash flow is FCF1. This variable is essentially undistributed cash flow as a percentage of sales averaged over the three years before the tender offer. When the entire sample is considered, bidders appear to have slightly less undistributed cash as a percentage of sales than do targets, providing weak support for the free cash flow hypothesis. The three-year average for this variable as shown in Table 1 is 5.1 percent for bidders and 6.6 percent for targets. The Mann-Whitney test suggests that the mean difference of 1.5 percent is not statistically significant.

When the sample is partitioned according to SIZE the difference between bidding and target firm undistributed cash remains about the same. When SIZE is greater than one, undistributed cash as a percentage of sales is 3.7 percent for bidders and 5.3 percent for targets, a mean difference of 1.6 percent even though both bidders and targets in this subset average less undistributed cash than the average for the entire sample. When SIZE is less than one, bidding firms and target firms average 5.8 and 7.3 percent respectively. Again, the mean difference is 1.5 percent, although this subset of bidders and targets has more undistributed cash than the average for the sample. Neither of these

differences is statistically significant, but it appears possible that bidders in general have less undistributed cash as a percentage of sales than do targets.

However, undistributed cash flow is not the same thing as free cash flow as defined by Jensen (1987). He defines free cash flow as the cash flow retained by a firm in excess of the positive net present value investment opportunities available. Thus, undistributed cash flow must be related to the firm's growth prospects, and bidders may be growing more rapidly than targets, especially in takeover attempts where SIZE is greater than one. This high growth rate suggests more growth opportunities and a higher level of investment for these bidding firms. At the same time, this subset of bidding firms retains, on average, a much smaller percentage of undistributed cash as a percentage of sales than other bidding and target firms in the sample.

Taken together, these circumstances suggest that small firms bidding for larger targets do not have free cash flow. In general, however this comparison of undistributed cash characteristics does not suggest that free cash flow is a major takeover motive. The undistributed cash flow differences between bidders and targets do not appear to be large enough or systematic enough to explain takeover bids. However, undistributed cash as a percentage of sales may simply be a poor proxy for free cash flow.

The change in undistributed cash as a percentage of sales over a period of time is another possible indicator of the presence of free cash flow. If this percentage is increasing over time, the firm may be hoarding cash. If this

measure is decreasing, it is less likely that the firm is hoarding excess cash. For the entire sample, undistributed cash as a percentage of sales (FCF1G) is growing faster (as measured by the slope of the ordinary least squares line) for targets than for bidders. In fact, it is decreasing for bidders at the rate of -1.1 percent and increasing for targets at the rate of .2 percent. However, the probability level for this difference is only .1692.

When the sample is partitioned according to SIZE greater than one, there appears to be little or no difference in the undistributed cash growth rate. For this subset of firms, free cash flow may not lead to empire building for bidders, nor provide a motive for disciplining cash hoarding targets.

In the opposite case when SIZE is less than one, the average growth rate for bidding firm's undistributed cash as a percentage of sales is significantly higher than the same measure for targets. The probability that the difference is statistically significant is .0297. This finding seems to support the contention that this subset of tender offers is motivated by empire building. The large bidders in this subset may hold excess cash and use it to acquire smaller firms. The negative market reaction to this subset of bids suggests that the capital markets, as suggested in Table 2, do not regard these acquisitions as positive net present value investments.

Debt Characteristics

Bidding firms may also be more highly leveraged in the years before the tender offer than are targets. TD/TA is the debt to total assets ratio. Bidders

on average have a debt to total assets ratio of 26.5 percent. For targets, debt to total assets is only 24.0 percent. This difference is significant at a probability level of less than .10 under the Mann-Whitney test.

Again, a different picture emerges when the sample is partitioned according to SIZE. When SIZE is greater than one the debt to total assets ratio averages 24.0 percent for bidders and 25.0 percent for targets. Targets in this case are slightly more leveraged than bidders, although the difference is not statistically significant. When SIZE is less than one the ratio is 27.7 percent for bidders and 23.5 percent for targets. This difference is statistically significant at a probability level of less than .01. So, large firms bidding for small targets definitely tend to be more leveraged than the target firm.

Jensen (1987) suggests that firms with free cash flow will also have excess borrowing power. Payment of cash to shareholders reduces managerial control of resources and potentially subjects managers to the monitoring of the capital markets. Retaining cash means that management may be able to finance projects internally and avoid unwelcome outside monitoring by lenders. The lower debt to assets ratio of target firms and the relatively high levels of undistributed cash flow along with the relatively slower growth rate of target firms lends some support to the free cash flow hypothesis.

Market Valuation Characteristics

DIVYLD is the dividend yield averaged over the three years before the takeover. The shares of bidders yield, on average, 3.1 percent while targets

yield 3.3 percent. This slight difference is not statistically significant. When the sample is partitioned according to SIZE the difference becomes more pronounced. When SIZE is greater than one, bidders yield only 1.8 percent while targets yield 3.2 percent. This difference is significant at a probability level of less than .03. When SIZE is less than one, bidders yield an average of 3.7 percent and targets 3.3 percent. This difference is not statistically significant. These results suggest that small bidders tendering for large targets are priced at a relatively higher level than other bidders and all targets. This may mean that the market views these firms as being better managed and having higher growth prospects than other firms. In short, these firms may be generally viewed as well-managed comers, competent to administer appropriate discipline to the targets for which they bid.

The market-to-book ratio as represented by MK/BK averages 126.5 percent for all bidders and 132.9 percent for all targets. This difference is not statistically significant at a probability level of .2110. When the sample is partitioned according to SIZE, the average falls for both bidders and targets. When SIZE is greater than one, the average for bidders is 102.9 percent and 114.9 percent for targets. This difference is significant at a probability level of .08. When SIZE is less than one targets still have a higher market-to-book ratio, averaging 141.3 percent for targets and 137.5 percent for bidders. This difference is not statistically significant.

The market valuation comparisons are somewhat inconclusive. Apparently, bidders in tender offers where SIZE is greater than one seek out targets that are priced relatively low in relation to dividends paid. The low dividend yield of bidders tendering for larger targets, suggest that this group of firms is viewed favorably and priced quite high by the market. Otherwise, both the dividend yield and market-to-book ratio do not suggest any serious underpricing of targets by the market and thus do not support the exploitation hypothesis.

<center>Shareholder Characteristics</center>

Jensen and Meckling (1976) in their development of agency theory suggest that widely held firms will have more agency costs than do firms that are more closely held. The reason is that many shareholders with few shares per shareholder will have less incentive to monitor the actions of managers than a few shareholders with many shares each. There is no absolute way to determine whether a firm is widely or closely held, but an acceptable proxy may be the average number of shares per shareholder.

AVGSH represents the average number of shares per shareholder of bidding and target firms in the year before the takeover. Table 1 demonstrates that bidding firms are, on average, more closely held than targets. Bidders average 5,746 shares per shareholder, while targets average only 1,917. This difference is significant at a probability level of .0000.

When the sample is partitioned by SIZE it is apparent that most of the difference can be accounted for by the small bidders when SIZE is greater than one. When SIZE is greater than one, bidders average 9,223 shares per shareholder, while targets average only 1,553. The difference is significant at a probability level of .0005. When size is less than one, the mean difference is much less. Bidders average only 4,120 while targets average 2,086. This difference is still significant at .0297. These results suggest that there may be fewer agency costs in bidding firms in general and especially in smaller firms bidding for larger targets. These findings would appear to lend some support to the disciplinary hypothesis. The results also suggest that tender offers wherein SIZE is greater than one are more likely to have a disciplinary purpose because the bidders are much more closely held than the targets.

<div align="center">The Regression Analysis</div>

A major objective of this research is to determine whether the financial markets impute motives to bidding firm managers in setting the new equilibrium share price at the time a tender offer is announced. This research postulates that there is a functional relationship between accounting variables of bidding and target firms and that the risk-adjusted change in the bidding firm's share price cumulated in a test period around the takeover announcement. These variables are assumed to proxy for firm efficiency, firm free cash flow, and firm agency costs.

A stepwise ordinary least squares regression was run to develop an explanatory model. The dependent variable was the bidding firm's prediction errors cumulated for the day before and the day of the announcement of the tender offer. The set of possible independent variables includes accounting and growth variables which might proxy for those bidding and target firm characteristics implied by the various takeover theories. Table 5 presents correlations for all variables in the model and table 6 provides the results of this regression.

A stepwise regression provides some significant advantages over other model selection techniques. A stepwise regression is similar to a forward regression in that variables are entered into the model one at a time. However, in a forward or backward regression once the variable is selected as providing significant improvement in r-squared it always remains in the model. In the stepwise procedure each variable is tested at each step to determine whether it should be retained. Often this procedure will determine that a previously entered variable is highly correlated with a subsequently entered variable. The previously entered variable may now fail to pass the F-ratio cutoff and be dropped from the model. This procedure tends to mitigate the common multicollinearity problem (Green 1978, 79).

Regression Diagnostics

The stepwise regression identified only eight variables that have significant power to explain the market's reaction to bidding firm share prices in

the two day event interval. Because the model is descriptive rather than predictive, it is important to diagnose the model for problems that may affect the validity of the parameter coefficients and the associated levels of statistical significance. Each of the variables identified by the stepwise procedure, as shown in table 6, achieves significance at probability levels of less than .06. The adjusted r-squared is also quite high at .4516, and the F-ratio at 10.27 suggests that the model has a good overall fit.

<p style="text-align:center">Multicollinearity</p>

A glance at the correlations among variables shown in table 5 suggests that there is significant collinearity among some variables. Neter, Wasserman, and Kutner (1990) suggest that collinearity among the independents variables causes the regression coefficients to vary widely from sample to sample. Thus, the information about individual regression coefficients may be quite imprecise.

> When independent variables are correlated, the regression coefficient of any independent variable depends on which other independent variables are included in the model and which ones are left out. Thus, a regression coefficient does not reflect any inherent effect of the particular independent variable on the dependent variable. (Neter, Wasserman,and Kutner 1990, 301)

Even though correlated variables may provide incremental predictive power, they also distort the relationship between the independent variables and the dependent variable. Because the model developed in this dissertation seeks to identify valid relationships between dependent and independent variables, it is critical that any collinearity problems be identified and eliminated.

Table 7 provides a set of standard statistics for identifying collinearity problems. With perfect independence among all variables, the Variance Inflation Factor and Tolerance would be equal to one. Thus, there is significant collinearity among most included variables. One solution for this problem is to delete variables from the model that are correlated and have relatively low explanatory power.

Table 7 suggests that collinearity can be substantially reduced from the model by deleting bidding firm growth in debt-to-assets (BTD/TAG), bidding firm average dividend payout ratio (BDIVPAY), and the growth rate of bidding firm market-to-book ratio (BMK/BKG). Table 8 suggests that the removal of correlated variables does not affect the sign of any remaining variables and that the relative change in variables is quite small. However, the magnitude of the parameter coefficient and the probability level of several remaining variables does change. The overall fit of the model as indicated by the F-Ratio remains almost the same at 10.28 although, the adjusted r-squared drops from .4516 to .3402.

<div align="center">Outliers</div>

Ordinary least squares regression (OLS) is very sensitive to the presence of outlying observations. One solution to this problem would be to delete these outlying cases. However, Neter, Wasserman, and Kutner (1990) suggest that so long as the outlier does not represent an actual data error, it should be retained and its influence dampened with a different estimation technique.

These econometricians identify the method of least absolute deviations (LAD) as one of a series of robust regression techniques that are relatively insensitive to outlying observations. This method estimates the parameters of the model by summing the absolute deviations from the mean of each observation. Thus, it is less sensitive to outliers than the method of ordinary least squares which sums the square of each observation's deviation from the mean.

This method can also be used to test whether outliers are distorting the regression coefficients. If the coefficients as generated by the method of least absolute deviations are substantially the same as those produced by ordinary least squares, then it is a fair assumption that outliers are not a distorting factor. Table 9 presents the results of the least absolute deviations regression run on the five uncorrelated variables that have been identified as important. It is plain that the variable coefficients and significance statistics are very close to the OLS figures. R-squared improves for many variables and the overall fit of the model also improves, but the descriptive power of the model is not affected. Since the model is intended to be descriptive rather than predictive, the validity of the regression coefficients is more important than maximizing the model r-squared.

Analysis of the Regression

As expected, the control variable PREMIUM is highly significant and negatively correlated with the market reaction. Bidding firm risk adjusted share prices tend to fall as the size of the takeover premium increases. This result is

expected because when all other factors are held constant, the risk adjusted return must fall as the amount of premium paid rises. As shown in Table 8, the t-statistic for the significance of this variable is -3.51 which is significant at a probability level of less than .01. The r-squared is .0942. PREMIUM alone explains over nine percent of the variation in risk adjusted returns in the event period.

The relative sizes of the bidding and target firm is the most important variable in predicting the market reaction to tender offers. The t-statistic for the SIZE variable is +5.24 and the simple r-squared is .1914. The market reaction to the tender offer is more positive when target firm assets are large in proportion to bidding firm assets. In other words, when the bidder is relatively small to the size of the target, the market reaction tends to be positive. When the target is small relative to the size of the bidder, the market reaction tends to be negative.

The market may use relative size as a rough and ready means of discriminating between productive and unproductive takeovers. Relative size may be a discriminating factor because of the way in which takeovers are financed. A large firm acquiring a small one may be able to finance the acquisition with internal funds. If financing is needed, a large firm may be able to acquire the necessary funds from external sources on the strength of its own asset base and credit rating. Lenders would likely look to the assets of the bidder for security rather than evaluating the worth of the target. Thus, large

firms may be able to acquire financing for a takeover that has no productive motive or prospects. Lenders may allow the large firm to overpay because it can repay the loan even if the target is a poor investment.

A small bidding firm has no such advantage. Lenders will take a close look at the worth of the target before consenting to lend funds for the acquisition, even at high interest rates. Lenders know that the loan cannot be repaid exclusively from the funds generated by the bidding firm. In order to assure repayment, the acquired firm must be worth its price. Lenders should be unwilling to lend funds to a small firm for a large unproductive takeover.

These considerations should become more and more relevant as the size of the target firm increases relative to the bidding firm and this is exactly what the regression suggests. The highly significant nature of SIZE suggests that the market has a simple and probably effective method of distinguishing between takeover attempts that are economically productive and those that are not.

Another important explanatory variable is bidding firm earnings per share. The t-statistic for BEPS is -2.20 and the simple r-squared is .0304. The regression suggests that the market reaction to the takeover attempt is more negative when bidding firm's EPS is higher and more positive as bidding firm EPS is lower. The disciplinary hypothesis implies the exact opposite, that efficient bidding firms buy up inefficient target firms. If the market believes this

to be the case, then high bidding firm efficiency as demonstrated by EPS should translate into a favorable market reaction to the takeover bid.

The stepwise procedure does not identify target firm EPS as being a significant explanatory variable for abnormal returns in the test period. Not only is target firm EPS unimportant in determining the market's reaction, higher bidding firm EPS is actively penalized. Perhaps the markets perceive that a firm with high EPS is endangering its per-share earnings by paying a premium for the target firm. In other words, the target is likely not worth its price and therefore the bidding firm's financial performance must suffer if the takeover bid is successful.

Only two target firm characteristics play a significant part in determining the market reaction to the takeover bid. One is the OLS growth rate of target firm assets in the three years before the tender offer (TASSETG). The t-statistic for this variable is -2.22 and the r-squared is .0227. These results suggest that the market reaction to the tender offer is likely to be negative when the assets of the target firm have been growing rapidly in the three years before the takeover. I interpret this finding as further evidence that the market distinguishes between takeovers motivated by discipline and those motivated by empire building. A firm that is growing rapidly is probably not poorly managed nor in need of discipline. If a tender offer is made for a rapidly growing firm, the motive is likely to be empire building rather than discipline. On the other hand, a firm with a low or negative growth rate may be in need of restructuring

or a new, more dynamic management team. Tender offers for a low-growth firm are far more likely to have a disciplinary motive.

Finally, the growth in target firm free cash flow as a percentage of sales is also an important explanatory variable. The t-statistic for this variable is +1.78 and the r-squared is .0268. These results suggest that the market reacts positively when TCF1G has been increasing in the three years before the takeover and negatively when it has been decreasing. This result is exactly what Jensen's free cash flow hypothesis would predict and thus lends some weak support to the free cash flow theory.

CHAPTER VI

CONCLUSION

Finance theorists maintain that discipline motivates corporate takeovers. They assert that target firm managers are either inefficient, self-serving, or both, and are replaced through takeovers. A variant of the disciplinary hypothesis suggests that target firm managers retain cash for which they have no positive net present value investment opportunities instead of distributing the cash to shareholders. Takeovers are seen as a sort of reverse Gresham's Law wherein good managers drive out bad. The results of this research suggest that only a minority of tender offers have the disciplinary purpose postulated by the theorists.

Coffee (1984) suggests that there is probably no single monolithic motive behind takeovers. The results of this research supports that contention. This research finds no evidence which would support a monolithic disciplinary motive for takeovers, although a subset of tender offers may have a disciplinary purpose. A comparison of the operating and financial characteristics of the entire sample of tender offers does not support the disciplinary hypothesis. For the sample as a whole, bidders have no statistically significant advantage in terms of return on invested capital. In addition, bidders return significantly less than targets on a per share basis. Bidding firms do appear to have higher

growth rates, but this may be attributable to an aggressive acquisitions strategy rather than internally generated growth.

When the sample is partitioned according to the relative size of bidding and target firms, a somewhat different picture emerges. Twenty-nine of the tender offers involve smaller bidders tendering for larger targets. In this subset of takeover attempts, the bidding firms are much more closely held than the targets and bidders from the other partition as demonstrated by the high average number of shares per common stockholder. More vigilant shareholder monitoring should result in tighter control over managers and fewer agency costs and inefficiencies of every kind. These firms should engage in fewer unproductive acquisitions and takeover battles. In this subset of firms, an empire building takeover attempt is unlikely.

In tender offers, the bidding firm must typically finance the acquisition by the issuance of substantial new debt. Large bidders acquiring smaller targets may be able to arrange this financing based upon their own asset base and credit rating. Potential lenders are less likely to examine carefully the value of the proposed acquisition before granting the additional credit. In other words, it is financially possible for large corporations to engage in empire building takeovers.

Such is not the case for smaller corporations bidding for larger targets. Lenders realize that there is little or no likelihood that the asset and cash flow base of the bidding firm could repay principal and interest if the acquisition does

not live up to expectations. In these cases, lenders are likely to be quite careful in the assessment of the acquisition's value. The acquired firm must be worth its price.

The market reaction to takeover announcements is consistent with this assessment. The news of smaller firms acquiring larger firms is greeted, on average, by a more favorable change in the risk adjusted share price than large acquiring small. In fact, the OLS regression suggests that the relative size variable is the single most important factor determining the market reaction. This relative size variable is even more important than the amount of the takeover premium.

The comparison of bidder and target financial variables is also consistent with this conclusion. For the 29 tender offers where SIZE is greater than one, bidding firms are much more closely held than either targets or bidders in the other partition. They retain a much smaller amount of undistributed cash than do the targets while also growing at a faster rate than the target firms. Targets in this subsample are growing more slowly than bidders while at the same time retaining more undistributed cash as a percentage of sales. This subset of targets may have free cash flow while the bidders may not.

The disciplinary hypothesis implies that bidding firms are more efficient than target firms. An examination of profitability measures does not support a monolithic disciplinary motive. An examination of average return on investment (ROI) for the entire sample suggests that bidders have a somewhat larger

average ROI, but the difference is not statistically significant. When the sample

is partitioned according to SIZE less than one, the average ROI of bidders and

targets is almost equal. When SIZE is greater than one, bidders appear to

have much higher ROIs than targets, but even this difference is not significant

at accepted probability levels.

When earnings per share is used as a profitability measure, the results

are unequivocal. Targets are more profitable, on average, than bidders in

regard to earnings per share. The mean earnings per share of targets is

greater than that of bidders in the sample as a whole and when it is partitioned

according to relative size of bidders and targets. In fact, the EPS difference is

more extreme in the SIZE greater than one partition.

The market appears to be completely indifferent to bidding and target

ROIs since neither is a significant explanatory variable for risk adjusted returns

during the test period. Bidding firm EPS is a significant explanatory variable,

but, contrary to the implications of the disciplinary hypothesis, the sign is

negative. In other words, higher bidding firm EPS leads to a more negative

market reaction to the takeover bid and lower bidding firm EPS leads to a more

positive market reaction. The market does not appear to be influenced at all by

target firm EPS or other measures of target firm profitability. These results

suggest little or no support for the disciplinary hypothesis.

In fact, the significant explanatory variables in the OLS regression may

provide strong support for empire building or hubris as the motive behind most

takeover attempts. Relative size (SIZE) is by far the most important of these variables. This measure may allow the market to discriminate between productive and unproductive motives because lenders will be reluctant to support unproductive takeovers when a small firm is bidding for a larger one.

The only significant target firm explanatory variables are the growth rate of target firm total assets and the growth rate of undistributed target cash as a percentage of sales. The market reacts negatively to a high target firm growth rate. I believe that this finding lends further support to the hypothesis that the market can distinguish empire building from disciplinary or other productive motives. A rapidly growing target firm is not likely to be mismanaged or to be retaining excess cash flow.

On the other hand, the market reacts positively when target firm undistributed cash as a percentage of sales is growing. The increase in this ratio very likely indicates that the target firm is retaining cash in excess of investment needs, providing a valid free cash flow motive for the takeover bid.

The results of this research do not support the theory that all takeovers come about because the target firm is in need of discipline. Bidding firms do not appear to be better managed or more profitable than the targets they bid for, except, perhaps, in a minority of takeover attempts wherein the bidder is much smaller than the target. In fact, the relative profitability of bidders and targets appears to play little or no part in the market's assessment of takeover bids. Buyers and sellers in the capital markets appear to use the relative size

of bidders and targets as a rough and ready way of distinguishing empire building from other productive motives.

Free cash flow may be the only takeover theory to receive explicit support from the OLS regression. However, the low r-squared for the growth rate of target undistributed cash suggests that this variable cannot be a significant factor in many takeover attempts. The magnitude and sign of the SIZE variable suggests that bids by large firms for small targets may be motivated by empire building. When small firms bid for larger targets, the bidding firm is much more likely to have a valid disciplinary motive. However, the subset of takeovers where the bidder is smaller than the target amount to less than one-third of the takeover attempts.

<p align="center">Future Research</p>

This research suggests that on average bidding firm share prices do not benefit by the initial announcement of a tender offer. However, if discipline is the purpose of the takeover, the market may take a wait and see attitude towards the new acquisition. Bidding firm shareholders may be rewarded over a longer period of time as the reforms instituted by the new managerial regime take effect. One way of testing this hypothesis would be to look at the abnormal returns accruing to successful bidding firms over a longer period of time, say five years, and comparing these results with the market's assessment during the two day test period used in this research.

The puzzling market reaction to bidding firm EPS is another area that needs additional research. Bidding firm EPS is a significant explanatory variable for the market's reaction to the tender offer. But, contrary to the predictions of the disciplinary hypothesis, the sign is negative. Perhaps, EPS is simply a poor proxy for firm efficiency or it may proxy for something entirely different.

Finally, table 3 reveals a puzzling discrepancy between bidding firm ROI and EPS. Bidders have a higher average ROI than targets, but a lower EPS. Because Earnings per Share depends upon the number of shares included in the denominator, there is no necessary relationship between EPS and ROI. However, Table 3 suggests that bidding firms have, on average, lower EPS and higher ROIs than the targets for which they bid. Intuitively, the reason for this discrepancy must lie in the denominator of the EPS calculation. The only way to determine the cause of the discrepancy is to examine the EPS and ROI calculation for each firm in the sample over a period of three years before the tender offer. This would constitute a major research project, but might well yield important insights into the differences between bidding and target firms.

APPENDIX A

VARIABLE DEFINITIONS

When these variables are encountered in the text, they may be preceded by a "B" indicating a bidding firm or a "T" indicating a target firm. In addition a measure of growth was developed for some variables. This measure is the least squares estimate of the growth rate for the three years before the takeover announcement. When the growth variable is referred to in the text, the last letter of the variable name is a capital "G".

Control Variables

PREMIUM: The percentage excess over pre-offer market price paid by the bidding firm for target firm shares. It is the per share bid price for target firm shares less target firm share price one month before the tender offer all divided by target firm share price one month before the tender offer.

METHPAY: One if the bid offer is for cash and zero if the bid offer consists of bidding firm stock or a combination of stock and cash

Disciplinary and Empire Building Hypotheses

H/WK: One if the bidding firm is a hostile suitor and zero if the bidding firm is a white-knight.

ROI: Return on Investment averaged for the three years before the takeover announcement. It is income before extraordinary items, divided by total invested capital in the year before the takeover announcement.

ROIDIF: The difference between bidding firm and target firm ROI in the year before the takeover.

EPS: Primary earnings per share averaged for the three years before the takeover announcement.

SALEGR: The percentage change in firm sales from three years before to the year before the takeover announcement.

ASSETG   The ordinary least squares growth rate for the firm's assets in the three years before the tender offer.

AVGSH: The average number of shares held by firm common shareholders in the year before the takeover announcement. It is calculated by

dividing total common shares outstanding at the end of the year by the total number of shareholders.

SIZE: Target firm total assets divided by bidding firm total assets.

Free Cash Flow Hypothesis

FCF1:   Undistributed cash flow divided by sales averaged over the three years before the takeover announcement. Undistributed cash flow is estimated by subtracting interest expense, tax expense, and dividend payouts from operating income before depreciation..

FCF2:   Cash and short-term securities divided by total assets averaged for the three years before the takeover announcement.

TD/TA: Total debt divided by total assets averaged for the three years before the takeover announcement.

DIVPAY: Dividend payout is defined as cash dividends declared on the common stock divided by income before extraordinary items (less preferred dividend requirements) averaged for the three years before the takeover announcement.

Exploitation Hypothesis

DIVYLD: Dividend yield is defined as cash dividends per share for which the ex-dividend dates occurred during the reporting period divided by the company's close price for the fiscal year. This variable is averaged for the three years before the takeover announcement.

MK/BK: Ratio of market to book value at the fiscal year end in the year before the takeover announcement.

APPENDIX B

TABLES

Table 1
Comparison of Selected Variables
Sample Size = 91

Variable	Bidding Firm	Target Firm	Difference	Mann-Whitney Z-Statistic for Difference in Means	Probability
ASSETS	2766.450	1374.785	1391.665	3.583	0.0003
AVGSH	5746.462	1916.697	3829.765	4.070	0.0000
FCF1G	-0.011	0.002	-0.013	1.374	0.1692
FCF1	0.051	0.066	-0.015	0.521	0.6017
TD/TA	0.265	0.240	0.026	1.671	0.0946
DIVYLD	0.031	0.033	-0.002	-0.574	0.5659
EPS	1.086	2.284	-1.198	-2.646	0.0081
MK/BK	1.265	1.329	-0.064	1.250	0.2110
ROI	0.094	0.081	0.013	0.371	0.7103
SALES	2893.806	1830.866	1062.940	3.096	0.0020
SALEGR	0.777	0.251	0.526	1.186	0.2356

Table 2
Mean Values of SIZE and CAR

	Full Sample	SIZE >= 1	SIZE < 1
Observations	91	29	62
Mean of SIZE	1.37	3.64	0.31
Mean of CAR	-0.008	-0.001	-0.01

Table 3
Comparison of Selected Variables
SIZE > 1, Sample Size = 29

Variable	Bidding Firm	Target Firm	Difference	Mann-Whitney Z-Statistic for Difference in Means	Probability
ASSETS	1144.640	2480.945	-1336.305	-1.843	0.0654
AVGSH	9222.840	1552.892	7669.948	3.476	0.0005
FCF1G	-0.041	0.001	-0.042	-0.443	0.6576
FCF1	0.037	0.053	-0.016	0.505	0.6133
TD/TA	0.240	0.250	-0.010	-0.941	0.3468
DIVYLD	0.018	0.032	-0.014	-2.185	0.0289
EPS	0.744	2.594	-1.850	-2.185	0.0289
MK/BK	1.029	1.149	-0.120	1.750	0.0802
ROI	0.105	0.068	0.037	1.376	0.1687
SALES	1498.250	3780.801	-2282.551	-1.967	0.0492
SALEGR	1.445	0.206	1.239	1.205	0.2281

Table 4
Comparison of Selected Variables
SIZE < 1, Sample Size = 62

Variable	Bidding Firm	Target Firm	Difference	Mann-Whitney Z-Statistic for Difference in Means	Probability
ASSETS	3525.039	857.387	2667.652	5.747	0.0000
AVGSH	4120.415	2086.864	2033.551	2.544	0.0110
FCF1G	0.003	0.002	0.001	2.174	0.0297
FCF1	0.058	0.073	-0.015	0.250	0.8027
TD/TA	0.277	0.235	0.042	2.589	0.0096
DIVYLD	0.037	0.033	0.004	1.037	0.2998
EPS	1.246	2.139	-0.893	-1.704	0.0884
MK/BK	1.375	1.413	-0.038	0.237	0.8124
ROI	0.089	0.088	0.001	-0.567	0.5706
SALES	3546.565	918.800	2627.765	5.647	0.0000
SALEGR	0.464	0.272	0.192	0.520	0.6033

Table 5
Correlation Report for Regression Variables

	PREMIUM	SIZE	BEPS	BTD/TAG	BDIVPAY	BMK/BKG	TASSETG	TFCF1G	CAR
PREMIUM	1.0000								
SIZE	-0.0284	1.0000							
BEPS	0.0284	0.0343	1.0000						
BTD/TAG	-0.0674	-0.1107	-0.3732	1.0000					
BDIVPAY	0.2177	-0.1413	0.2793	-0.0922	1.0000				
BMK/BKG	0.2505	0.3132	-0.0742	0.0155	-0.0685	1.0000			
TASSETG	-0.0460	0.1044	0.0213	0.0356	0.0698	0.0531	1.0000		
TFCF1G	0.0210	0.0251	0.0757	0.1023	-0.0105	0.0053	-0.1008	1.0000	
CAR	-0.3069	0.4374	-0.1743	-0.1175	-0.0429	-0.1701	-0.1506	0.1638	1.0000

Table 6
Multiple Regression Report
Dependent Variable: CAR
All Stepwise Variables Included

Variable	Parameter Estimate	T (B=0)	Prob. Level	R-Sq.	Sequential R-Sq.
Intercept	0.000000	0.8100	0.4187		
PREMIUM	-0.275000	-3.2800	0.0015	0.0942	0.0942
SIZE	0.543100	6.4100	0.0000	0.1914	0.2781
BEPS	-0.333800	-3.7800	0.0003	0.0304	0.3108
BTD/TAG	-0.193400	-2.2500	0.0272	0.0138	0.3397
BDIVPAY	0.165200	1.9500	0.0552	0.0018	0.3606
BMK/BK	-0.273000	-3.1700	0.0022	0.0289	0.4265
TASSETG	-0.184200	-2.3100	0.0232	0.0227	0.4673
TFCF1G	0.185600	2.3300	0.0223	0.0268	0.5004

Analysis of Variance Report

Source	df	Sum of Squares Sequential	Mean Square	F-Ratio	Prob. Level
Constant	1	0.0062129	0.0062129	10.27	0.000
Model	5	0.1360474	0.0170059		
Error	85	0.1358472	0.0165667		
Total	90	0.2718947	0.0030211		

Root Mean Square Error	0.0407023
Mean of Dependent Variable	-0.0082628
Coefficient of Variation	-4.9259850
R-Squared	0.5004
Adjusted R-Squared	0.4516

Table 7
Multicollinarity Diagonistics

Variable	Variance Inflation Factor	Tolerance	R-Squared	F-Ratio
Full Model			0.4516	10.27
PREMIUM	1.156	0.865		
SIZE	1.176	0.850		
BEPS	1.281	0.780		
BTD/TAG	1.214	0.824		
BDIVPAY	1.184	0.845		
BMK/BK	1.220	0.820		
TASSETG	1.040	0.961		
TFCF1G	1.043	0.959		
Three Variables Deleted				
PREMIUM	1.0038	0.9962	0.3402	10.28
SIZE	1.0138	0.9863		
BEPS	1.00834	0.9917		
BTD/TAG				
BDIVPAY				
BMK/BK				
TASSETG	1.02456	0.976		
TFCF1G	1.0178	0.9825		

Table 8
Multiple Regression Report
Dependent Variable: CAR
Correlated Variables Removed

Variable	Parameter Estimate	T (B=0)	Prob. Level	R-Sq.	Sequential R-Sq.
Intercept	0.0000	1.5800	0.1170		
PREMIUM	-0.3008	-3.5100	0.0007	0.0942	0.0942
SIZE	0.4516	5.2400	0.0000	0.1914	0.2781
BEPS	-0.1888	-2.2000	0.0308	0.0304	0.3108
TASSETG	-0.1920	-2.2200	0.0294	0.0227	0.3536
TFCF1G	0.1537	1.7800	0.0787	0.0268	0.3768

Analysis of Variance Report

Source	df	Sum of Squares Sequential	Mean Square	F-Ratio	Prob. Level
Constant	1	0.0062129	0.0062129	10.28	0.000
Model	5	0.1024591	0.0204918		
Error	85	0.1694356	0.0019936		
Total	90	0.2718947	0.0030211		

Root Mean Square Error	0.0446471
Mean of Dependent Variable	-0.0082628
Coefficient of Variation	-5.4034040
R-Squared	0.3768
Adjusted R-Squared	0.3402

Table 9
Multiple Regression Report
Dependent Variable: CAR
Method of Least Absolute Deviations

Variable	Parameter Estimate	T (B=0)	Prob. Level	Simple R-Sq.	Sequential R-Sq.
Intercept	0.0000	1.670	0.0990		
PREMIUM	-0.2904	-3.650	0.0004	0.1028	0.1028
SIZE	0.5035	6.320	0.0000	0.2490	0.3324
BEPS	-0.2280	-2.860	0.0053	0.0440	0.3833
TASSETG	-0.2209	-2.760	0.0071	0.0415	0.4396
TFCF1G	0.1645	2.060	0.0427	0.0312	0.4662

Analysis of Variance Report

Source	df	Sum of Squares Sequential	Mean Square	F-Ratio	Prob. Level
Constant	1	0.000594	0.005938	14.85	0.000
Model	5	0.113359	0.022672		
Error	85	0.129778	0.001527		
Total	90	0.243138	0.002702		

Root Mean Square Error	0.039074
Mean of Dependent Variable	-0.082408
Coefficient of Variation	-4.741581
R-Squared	0.4662
Adjusted R-Squared	0.4348

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