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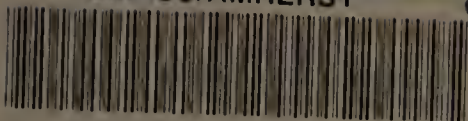*University of Massachusetts Amherst*

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MANAGERIAL COMPENSATION AND SHAREHOLDER WEALTH
CONSEQUENCES OF "WHITE KNIGHT" BEHAVIOR

A Dissertation Presented

by

AJEYO BANERJEE

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 1991

School of Management

MANAGERIAL COMPENSATION AND SHAREHOLDER WEALTH
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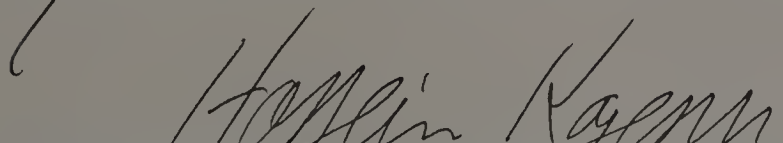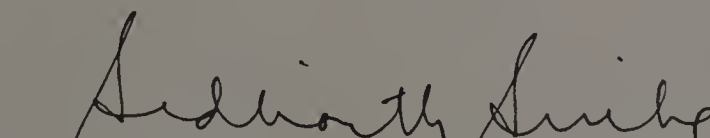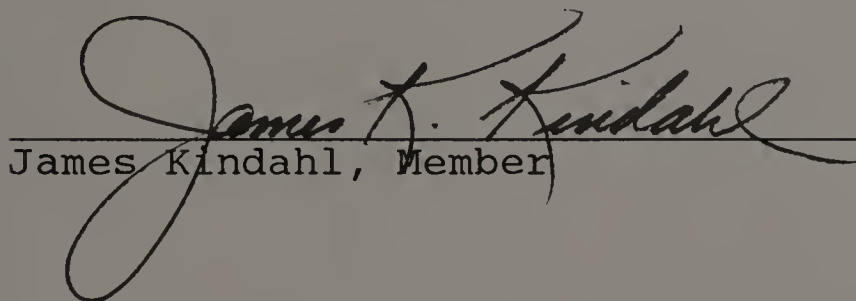

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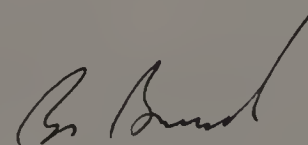Approved as to style and content by:

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DEDICATION

This dissertation is dedicated to the memory of
my grandfather, Dhirendranath Banerji.

ACKNOWLEDGEMENTS

I would first like to acknowledge my sincere gratitude to Professor James E. Owers, Chairperson of my dissertation committee. His continual encouragement and guidance played a prominent role in shaping this dissertation. Professors Hossein Kazemi and Sidharth Sinha provided a range of inputs and were directly involved in helping me construct appropriate comparison variables for testing the hypotheses relating to managerial behavior. Professor James Kindahl provided critical insights for a meaningful formulation of the hypotheses and the selection of suitable econometric tests for data analysis. I would also like to thank the other faculty members of the finance group in the School of Management who made valuable suggestions.

Ms. Mary Chatfield, Librarian of the Baker Library at the Harvard Business School, very generously allowed me to use the facilities of the library. The staff at the Cole Room were ever helpful in locating the vast number of original proxy statements in microfiche for collecting data relating to the compensation and stock holdings of managers. I would like to convey my heartfelt thanks to all of them.

For me, this dissertation is the culmination of a long process of academic and professional growth; I would be remiss if I did not thank all my teachers at school and college who channelized my energies in the right direction.

ABSTRACT

MANAGERIAL COMPENSATION AND SHAREHOLDER WEALTH

CONSEQUENCES OF "WHITE KNIGHT" BEHAVIOR

MAY 1991

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This dissertation investigates the manager motivations involved in the participation of White Knights (WKs) in corporate control contests. The three features of WK bids, viz. (i) it is a subsequent bid , (ii) it is a friendly bid and (iii) it follows a hostile bid, combine uniquely to provide the context for varying bidding motivations of WK managers relative to the hostile bidders (HBs). An analysis of the sequence of bidding in these contests reveals a category called HHW WKs who make their bid after *two* consecutive bids by the HB, and tend to take relatively more time in doing so. The non-HHW WKs make their bid in relative haste after the *first* HB bid. Overpayments by WKs, for which statistical evidence is documented, are observed to be much more pervasive, and of considerably greater economic magnitudes, for non-HHW WKs. The managers of HHW

WKs are thus more likely to be firm value maximizers; any observed overpayments could be the result of hubris or the winner's curse. However, the managers of non-HHW WKs may not be maximizing firm value through their bids, implying an absence of proper ex-ante incentive alignments for minimizing agency conflicts. These managers may thus have a lower proportion of annual expected income from their separate holdings of stock and stock options relative to their annual cash compensation (defined as variables COM and OP respectively). An examination of the structure of compensation packages of managers reveals that COM is lower for non-HHW WKs as compared to HHW WKs. OP is unable to directly distinguish between non-HHW WKs and HHW WKs. Yet, OP (as well as COM) are lower for non-HHW WKs relative to HBs. Further, neither COM nor OP is able to differentiate between HHW WKs and HBs. Thus, if HBs are considered as firm value maximizers, then HHW WKs are likely to be governed by similar motivations. In contrast, size maximization goals leading to higher proportions of cash compensation for their managers may dominate the acquisition activity of non-HHW WKs. External monitoring to limit agency conflicts, as proxied by relative debt levels, is also lower for non-HHW WKs.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Corporate Control Contests

When a firm makes a hostile bid for a target firm with a tender offer at a premium over the market price, the ensuing contest is primarily one between the managers of the two firms for control of the target's assets. While the bidding firm is perceived to be motivated by possible future synergistic gains consistent with firm value maximization, the motives of the target managers in resisting the bid are not clear. On the one hand, by resisting the offer, target managers may be delaying the acquisition in order to attract higher bids for larger gains to its stockholders.[1] On the other hand, their desire for retention of full control over the target firm's assets can dominate their obligation to find the best possible value for investment in the shares of their firm.[2]

Both of these seemingly contradictory motivations of the target managers can be largely reconciled with the entry of a White Knight (WK) in the contest. The WK gets its name from its role in "rescuing" the target firm from the "evil" clutches of the hostile bidder (HB). The term 'White Knight' clearly implies that the WK bid is a friendly bid. Whether a WK is invited by the target into the bidding process or enters it of its own volition is not always clear. Yet, there is little doubt that such a bid enables

the target managers to have the "best of both the worlds".
These managers are likely to partially retain control
because the WK takeover bid is friendly, and by definition,
has been made with the consent of the target.[3] The
managers also fulfil their fiduciary duty by facilitating
the payment of a substantial premium to their principals,
the stockholders, since the WK has to bid a higher value for
the target in order to succeed in making the acquisition.
Though stockholders of the target may have suffered an
opportunity loss in as much as other bidders are frightened
away by the entry of the WK,[4] this loss can never be
directly ascertained. The empirical evidence will thus
record only the *realized* gains of target stockholders in *all*
bidding situations, as directly recorded by Black and
Grundfest (1988), and detailed in the reviews of the merger
studies conducted by Jensen and Ruback (1983), and Jarrell,
Brickley and Netter (1988).

Thus, faced with a hostile tender offer, the
motivations of the *target managers* in inviting a WK to
acquire their firm in a subsequent friendly bid seem clear.
However, the motivations of the *WK managers* in making their
bid are not that apparent. On the positive side, it is
feasible that the WK managers are in the process of
implementing a capital acquisition strategy for their firm.
The besieged target is identified as one having the
potential of additional gains because of the friendly nature

of the acquisition; this rationale will justify the premium over the pre-existing HB bid. Potential synergies can also motivate the desire of WK managers to establish a closer relationship with the target by obtaining a large equity stake in the firm in a friendly manner, without acquiring controlling interest.[5] In these ex-ante situations, the WK managers act in their principals' best interest.

However, there can also exist non firm-value maximizing manager motivations for the WK bid. The WK's late entry into the bidding process, made with relative haste after the first HB bid, may indicate a lack of careful scrutiny of the target. Also, there is no obvious explanation, consistent with stockholder wealth maximization, for the preference of WK managers to risk a contested bid instead of going in for a preemptive friendly bid (Lofthouse, 1984).[6] As an example of possible non firm-value maximizing scenarios for WK bids, the WK manager may have access to "free" cash flow (Jensen, 1986),[7] which can be used to make a WK acquisition which is a suboptimal investment. Alternatively, despite the non-firm value maximizing nature of the WK acquisition, the managers may be keen to increase their personal power through growth and higher turnovers (Shleifer and Vishny, 1988, 1989). Another possibility can be the WK managers' implementation of their own antitakeover strategies. This will entail expanding to a level where the probability of a future HB bid against their firm becomes lower. Such a

strategy will further ensure that they retain their control over the firm's assets. Significantly, the common feature of all these alternatives is the *non* firm-value maximizing behavior on the part of the WK managers.

The divergent motivations for WK bids are not inconsistent with reports of takeover activity in the summary studies by Jensen and Ruback (1983) and Jarrell, Brickley and Netter (1988), which do not find consistent results for bidders. There does, however, seem to be unanimity of opinion regarding the trends.

- When present, gains to bidders have never been large in percentage terms (Jensen and Ruback, 1983). Some of the earlier studies found losses to bidders (Dodd, 1980).

- Commencing with the conglomerate mergers of the sixties, there has been a trend toward negative bidder returns in the eighties (Jarrell, Brickley, & Netter, 1988), and the losses have been found to be statistically significant (Black, 1989).

- The existence and extent of positive and negative bidder returns has been study specific, depending on the sample and event window examined. Roll (1986) has questioned the interpretability of the results for narrow event windows because of the possibility that the market reacts when acquisition strategies are announced by bidders prior to the bid rather than

4

during the announcement of the actual bid.

- The higher incidence of wealth reducing bids in the
  eighties has been ascribed to an increase in multiple
  bidding. In fact, first bidders who are successful
  continue to make gains and significant negative
  return reactions are observed in late bidder acquirers
  (Bradley, Desai and Kim, 1988).

- Typically, bidders have been found to be larger than
  targets. Therefore, the small positive bidder returns,
  where existing, have translated into large dollar gains
  comparable to dollar gains for targets (Dennis and
  McConnell, 1986).

Since overpayment by bidders cannot be ruled out from
the empirical evidence, researchers have attempted to
ascertain the reasons for possible overpayment. This
analysis is especially contextual for WKs, who are a subset
of late bidders with additional target connected
collaborative features. WKs are accordingly more likely to
engage in overpayment and be responsible for negative bidder
returns.[8]

In the literature, there are rationalizations of
overpayment by bidding firms' managers who are perceived to
be faithful to the goal of firm value maximization. Roll
(1986) contends that in their enthusiasm to acquire the
target, managers of bidding firms may overpay due to hubris.
In a slightly different vein, Varaiya and Ferris (1987)

posit that managers of bidding firms mistakenly overbid to increase the probability of their winning the contest because they are afflicted by the "winner's curse". Both these explanations give the benefit of the doubt to the bidding manager and are perfectly compatible with the complete alignment of manager-stockholder interests and the goal of firm value maximization. According to these rationales, the overpayment by the managers of the bidding firm is not deliberate.

Other explanations of overpayment are not as charitable to the managers of bidding firms. Jensen (1986) mentions the availability of "free" cash flows as providing incentives to the managers to undertake suboptimal investments or bad acquisitions instead of distributing these funds to the stockholders. Shleifer and Vishny (1988) state that manager goals in acquisition may be quite different from stockholder goals. Managers pay additionally from the firm's cash flow for fulfilling their own goals which do not necessarily benefit stockholders; this is reflected as the overpayment in the stock price of the bidding firm. These theories are based on the premise that agency conflicts existing between managers and stockholders play out in value-decreasing acquisitions; thus overpayment by managers of bidding firms can be deliberate.

If WK managers often overpay for the targets they acquire, we need to identify scenarios where the overpayment

is likely to be deliberate, and other situations where it is
not. For the purpose, we follow a two pronged approach.
First, we look for differences in the abnormal returns
profiles of groups of WKs based upon certain characteristics
of their bids. As we posit in the next section, such a
partition of WKs can be based on their *position* in the
sequence of bids for the target.

Next, we seek to separate WKs into two groups: those
WKs where the managers are motivated to maximize stockholder
wealth, and other WKs where the managers are not so
motivated. To this end, we make use of the principle that
managers who do not act in a manner which maximizes firm
value will be disciplined by the labor market; the threat of
such a discipline is expected to act as a deterrence to
aberrant manager behavior. We also know that on an ex-ante
basis, such discipline can be imposed on managers through
the use of stock based incentives in their compensation
contracts. Systematic incentive related differences in the
compensation contracts of WK managers can thus lead us to
conclude that WKs whose managers have an effective incentive
structure in their compensation contracts are more likely to
be *unintentional*, rather than *intentional* overpayers.

Based on the partition in the preceding paragraph, we
need to examine the compensation contracts of the relative
managers to identify whether the overpayment by the WK
managers is deliberate or not. Further, if this partition

is observed to be correlated with the partition of WKs based upon their position in the sequence of bids (which is posited to lead to differentiated abnormal returns profiles), we can directly identify *unintentional* overpayers from amongst WKs from the timing of their entry into the control contest reflected in the sequence of bids. The need to investigate compensation contracts will then become redundant, and manager motivations can be directly ascertained from the sequence of bids and abnormal return profiles. Overall, this study is expected to contribute significantly to the understanding of manager motivations in anticipating, initiating, and reacting to processes which intend to change existing control over corporate assets.

1.2 The Study

In order to accomplish our objectives, we have investigated the market reaction to WK stock prices in time intervals between the various bids of the HB and the WK in the context of the sequence of the different bids in control contests involving WKs. Our approach is based on the premise that in a firm value maximizing environment where the interests of the stockholder and the manager are completely aligned for all bidders, a bid (especially a late bid with greater chances of overpayment) requires a detailed appraisal of the value of the target to the bidder. Also, because of the timing of their entry, managers of potential late entry bidders may like to follow a cautious approach by

observing the playing out of the contest before moving in with their bid, if only to have additional information on the attractiveness of the target to the HB. One way to exhibit this caution will be to look for a higher bid by the HB when its first bid is rejected.[9] Indeed, some WKs (called HHW WKs because their bid (W) comes after two HB bids (HH) from the same HB) do seem to act in this manner. Overpayment in their case is significantly lower than most other situations where the WKs enter the contest relatively quickly (compared to the HHW WKs) after the HB bid. Also, about *one* in every *two* HHW WKs has a positive abnormal return during the bid. However, only *one* in *seven* White Knights has a positive abnormal return during their bid if they do not display the HHW feature. The returns profile for the HHW WKs thus seem to be similar to the overall returns profile of bidding firms from other studies; this is not the case with the returns profile of the non-HHW WKs.

The above indications lead us to suggest that managers of HHW WKs are more likely to be firm value maximizers. Even if they do end up overpaying, it is unlikely to be *intentional*. In contrast, managers of the non-HHW WKs are more likely to have *anticipated* overpayment or *initiated* a downward revision in the market's expectations of the firm's future cash flows.

Our view in this regard is reinforced when we investigate a third type of bidding sequence called

9

Alternating Sequential Bidding (ASBs). For most WKs, their only bid is the successful bid. However, for some (who are not HHW WKs), the HB comes back with a higher bid *after* the WK's first bid. In *all* these cases, the WK continues to overbid until it succeeds in acquiring the target. More importantly, each of the subsequent WK bids is additionally value reducing in contrast to subsequent HB bids which have no impact on the stock price of the HB.

The partition of the WKs based on their position in the bidding sequence gives a reasoned indication that the non-HHW group of WKs is more likely to be an *intentional* overpayer. More directly, an *intentional* overpayer is unlikely to be a firm value maximizer. If a manager overpays deliberately and yet survives, we suggest that the various market mechanisms available to discipline such managers (stated below) must be ineffectual. The available disciplinary measures of the market are as follows:

External Mechanisms

-    Managerial labor market.
-    Hostile tender offer.

Internal Mechanisms

-    Structure of managerial compensation packages.

10

If the *external* mechanisms (outlined above) are effective, then managers of WK firms who are considered to be involved in non firm value maximizing activity can expect to be disciplined through the managerial labor market or through a hostile takeover bid for the WK. However, there is little empirical evidence of efficiency in the managerial labor market, primarily because valuation of the intangible human capital of managers is very difficult. Disciplining through hostile tender offers may also not be effective,[10] because the WK acquisition strategy can itself play the role of an antitakeover device and avoid the disciplining mechanism of hostile takeovers in the future. A successful WK acquisition, by increasing size, makes it less likely (from the resource standpoint) that the WK will be the subject of a future HB bid.

On the *internal* side, the disciplining mechanism works through the stockholders opting to align the interests of their managers with themselves by providing suitable incentives in the managerial compensation packages so as to minimize aberrant manager behavior. There is a large body of literature (reviewed in chapter 2) originating from financial economics, accounting, and management which collectively demonstrates that managerial ownership of stock and stock options helps to reduce agency conflicts, aligns the interests of managers and stockholders, and even favorably affects investment and financing decisions. We

posit, then, that managers who *do not* have such incentives on an ex-ante basis are more likely to perform in a non firm value maximizing way (and the converse also holds true), and this can be examined ex-post in the case of WKs. If the proposed acquisition by the WK leads to a maximization of the manager's own utility function, then he/she can end up being an *intentional* overpayer. The non firm value maximizing behavior may be at little personal cost to the manager because of the inadequate alignment of incentives in the compensation package. Additionally, there may be personal benefits in the form of "entrenchment" through acquisition (Shleifer and Vishny, 1989). In this connection, the existence of leverage can also lead to the institution of internal monitoring mechanisms through bond indentures. These can restrict the amount of "free" cash flow available to managers, and be a general disincentive to non firm-value maximizing actions by the managers of the WK firms.

There are no *absolute* standards for the proportion of stock and stock options in compensation packages which will completely eliminate agency conflicts. However, we consider whether the incidence of stock and stock options in compensation packages are significantly higher in the case of the HBs and HHW WKs where interests of stockholders and managers seem to be more aligned, when contrasted with the managers of non-HHW WKs. If such a hypothesis is

empirically well-founded, it will support our original contention that managers of HHW WKs are more likely to be value maximizers pursuing strategies supportive of the objectives of the firm. In contrast, managers of non-HHW WKs will possibly exhibit non-value maximizing behavior when making their bid.

In conducting our study on the extent of managerial ownership in compensation packages, we separately consider stock options. Stock options are usually ignored in the compensation literature because of difficulties in valuation. Also, stock options have undergone a large number of changes over the years discouraging meaningful inter-year comparisons. Another reason for historically excluding stock options is the tax benefit of these options to the firm and the manager which dominated any incentive effects (Miller and Scholes, 1981). In our comparison of the proportion of stock and stock options to total compensation, both the groups (HB and WK) appear in the same time frame of the control contests. As such, tax consequences, or changes in the nature of the option plans, are not likely to have any intertemporal marginal effects. Our approach to the valuation stock options is laid out in chapter 4.

The structure of the rest of the dissertation is as follows. Chapter 2 reviews the relevant literature in detail. Chapter 3 explains the bidding situations regarding the WK bids and defines the various hypotheses of the study.

Chapter 4 provides details of the data and methodology.

Chapter 5 discusses both the *results* of testing the

hypotheses regarding bidding behavior, and their

implications for managerial motivation. Chapter 5 further

discusses the results of testing the hypothesis relating to

managerial motivation. Chapter 6 provides a summary of the

findings and reviews the contribution of the study.

1.   Jarrell, Brickley and Netter (1988) state that "the ...
      benefit of resistance comes when resistance by target
      management helps promote a takeover auction. ... This
      auction rationale for resistance is harder to reject
      statistically." - p 58.

2.   Dann and DeAngelo (1988), in a study of antitakeover
      defenses launched by target firms in response to
      hostile bids (responsive restructuring), find that
      such strategies were generally detrimental to the
      stockholder wealth of targets, presumably because of
      the managerial control retention features involved.
      However, a successful takeover by the hostile bidder or
      a competing bidder results in a wealth gain for target
      stockholders.

3.   The role, if any, of investment bankers in bringing the
      managers of the WK and the target together does not
      vitiate the basic premises of the situation.

4.   The theoretical model of Shleifer and Vishny (1986),
      discussed in chapter 2, is based on such a scenario.

5.   In this situation, the subsequent friendly bidder is
      called a White Squire to distinguish it from a White
      Knight who would seek to acquire controlling interest
      in the target firm. A White Squire participates in the
      antitakeover maneuver of the target firm to deter the
      HB from pursuing its bid any further, while enabling
      the target firm to retain its independent existence.
      Since White Squires do not commit themselves to acquire
      the target, valuation consequences of their bids are
      likely to be different from those of other similarly
      placed firms who do seek to exercise complete control
      over the target through acquisition, viz. White
      Knights.

6.   We do not rule out the possibility of premiums offered
      in friendly WK bids being of the same magnitude as
      those offered in preemptive friendly mergers. This
      situation presupposes that potential synergistic gains
      to the hostile bidder (HB) are considerably lower than
      those (gains) to the WK. Thus, the WK can effectively
      ignore the prior bid of the HB, and the HB has no scope
      of topping the WK bid. However, such wide disparities
      in valuations are relatively unlikely. Also, in such a
      situation, since the target is already in play, the WK
      in the firm value maximization mode may prefer not to
      'give away' the entire gains to the target.

7.   These are surplus, unrestrained (by bond indentures)
      cash flows under the control of managers, which are not
      distributed to shareholders despite the absence of
      positive net present value avenues of investment.

8.   Negative bidder returns during the event period
      represent overpayment because they may be assumed to
      cause an equivalent downward revision in the
      expectations of future cash flow due to the event in
      the event time methodology framework.

9.   The HB, which is presumed to have thoroughly evaluated
      the target firm, usually decides upon a range over
      which it will bid. If it makes more than one bid, a
      better estimate is likely to be available of the upper
      end of the range. If it does not, the first bid may be
      perceived to have largely exhausted the range. Because
      of the costs incurred in assessing the target, the HB
      would probably come back with another bid if it could
      do so within its predetermined range.

10.   The issue is addressed by Mitchell and Lehn (1990).

CHAPTER 2

LITERATURE SURVEY

In this survey, we review some representative papers
with a key bearing on the issues relevant to our study.
Since we initially use cumulative abnormal returns of
bidders under the market model (explained in detail in
chapter 4) for providing support to our hypotheses, we start
the survey by briefly reviewing the history of research on
cumulative abnormal returns of bidding firms.

2.1 Bidder Returns in Merger Studies

As Jensen and Ruback (1983) aptly summarize, research
on mergers has conclusively shown that the shareholders of
target firms obtain significantly positive abnormal returns
as a result of successful takeover activity.[1] However,
this outcome for targets has not been duplicated for
stockholders of *bidding* firms, who do not get significantly
large and positive abnormal returns during their bid.
Jarrell, Brickley, and Netter (1988) have stratified the
sample of bidding firms by decade, and reported that
significant *positive* excess returns for bidding firms in the
1960s and the 1970s (Jensen and Ruback, 1983) have been
replaced by insignificant *negative* excess returns to bidders
in the 1980s. Bradley, Desai and Kim (1988) seek to explain
the phenomenon of insignificant *average* bidder returns
through the increased incidence of multiple bids in the
1980s. However, as Roll (1988) mentions, it has never

become quite clear why the gains from mergers shall accrue
so overwhelmingly (at least in percentage terms) to targets
instead of being more equitably divided between bidders and
targets.[2]

Black (1989) summarizes all studies on bidder returns
in 1987 and 1988,[3] and finds a preponderance of negative
abnormal returns to bidders over a short event window of one
to four days, as well as over longer event windows. It is
certainly possible that over the decades, a structural
change has been occurring in bidder performance during
takeover bids, putting increasing pressure on the already
slim share of takeover gains in the first place, and in some
cases, perhaps wiping out gains altogether. Hostile bids,
ushered in 1974,[4] caused increased competition for takeover
of target firms through multiple bids. Additionally, as
Black (1989) conjectures, the greater induction of private
bidders in the 1980s due to an increased incidence of
leveraged buyouts and management buyouts etc. can
potentially affect the studies covering this period with a
selection bias, since private bidders are excluded from
these studies for data considerations.

If we accept Roll's (1986) view, the outcome of long-
term strategy implementation by bidders is reflected in
bids. These bids are therefore likely to be anticipated by
the market. Market reaction may thus be forthcoming only to
information regarding the prospective strategy, and *not* to

the actual implementation of the strategy effected through bids. Additionally, the partially anticipated nature of the event (Schipper and Thomson, 1983) makes the event study with insufficiently large windows prior to the bid an inadequate tool to measure the impact of the event through an estimation of the relative abnormal return.[5] Because of these two factors unique to bidder returns viz. the gap between the formulation and implementation of strategy and the partially anticipated nature of the event, there is the risk of making incorrect inferences from the event-related returns.

In a discussion of the wide variation in the evidence regarding bidder returns, Roll (1988) states that "depending on the paper, the sample, the period, and the biases of the reader, widely differing conclusions can be reached." The evidence, while seeming to be at a dead end, also indicates an opportunity if it is perceived to imply that there exist subsets of bidders which, while differing among themselves in the pattern of abnormal returns during takeover bids (leading to the mixed evidence), exhibit considerably more homogeneity within each individual subset. Some of these subsets will have to exhibit negative abnormal returns representing overpayment more pervasively for the overall average for bidders to correspond to the documented evidence.

Existing research shows progress in identifying the characteristics of some such subsets. Tehranian, Travlos & Waegelein (1987) demonstrate that firms with long-term performance linked compensation plans are likely to experience a more favorable market reaction to their acquisition proposals. The possibility of a negative abnormal return for bidders increases with stock financing of acquisitions (Travlos, 1987) and low managerial ownership (Amihud, Lev and Travlos, 1990). Lang, Stulz and Walkling (1989) document evidence that bidders with poor abnormal returns have a low Tobin's Q^6 (a proxy for firm performance). Morck, Shleifer and Vishny (1990) state that abnormal returns exhibited by bidding firms are lower when they diversify or look for a rapidly growing target, or when the performance of their managers prior to the acquisition is considered to be poor. Jarrell and Poulsen (1989) show that the abnormal returns to the bidder are lower (the bidder has to pay a higher premium) if the size of the target is smaller relative to the bidder.

2.2 Reasons for Possible Overpayment by Bidders

Jarrell, Brickley and Netter (1988) ascribe the change in the direction of abnormal bidder returns in the 1980s to the increased incidence of multiple bidding which lead to higher target premiums, and, as a consequence, lower bidder returns. According to them, multiple bidding has been encouraged in the 1980s by disclosure and delay rules

imposed by Federal and State regulations, court rulings

protecting defensive tactics, the invention of new defenses

against takeovers (like 'fair price amendments' and 'poison

pills'), and the presence of sophisticated takeover advisers

to implement the defenses. However, none of these reasons

explain why the abnormal return for the bidder will be

negative.

Roll (1986) and Varaiya and Ferris (1987) offer

rationales for *unintentional* overpayment by bidders in

tender offers.[7] Roll's theory is based on manager optimism

and uncertainty about value. In his analysis, the existence

of an active market in the item being valued makes takeover

bids different from other types of bids where there is a

symmetry between the buyer and seller regarding valuation.

Because the value of the target is uncertain, the valuation

of the bidders is likely to be distributed in a manner such

that the expected value is the current market price of the

target. However, since no bid is made if the valuation is

below the market price of the target, samples of bidding

situations are not random and represent positive errors in

valuation. Thus, there remains a high probability of

overpayment even if markets are strong-form efficient. Yet,

when making their bids, managers seem to be afflicted with

excessive optimism or hubris in presuming that their bid is

a fair bid.

Varaiya and Ferris (1987) base their reasoning on manager ignorance and the "winner's curse". Their analysis is also based on wide fluctuations in valuation of the target. The "winner's curse" hypothesis (Capen, Clapp and Campbell, 1971) states that in any bidding situation where the value of the object being bid for is uncertain, a party that unknowingly overestimates the value of a given object tends to bid higher than its competitors, and is thus more likely to win it. Mathematically, Oren and Williams (1975) have shown that when the winning bidder's estimates are correct on average, the estimated expected value of the object won is greater than its ultimate expected value. Thus, in a takeover bidding situation, the winner tends to be the bidder who most overestimates the value of the target. Although this approach is similar to Roll's hubris theory, the winner's curse approach emphasizes the higher probability of success when the value of the target is overestimated.

An alternative explanation of bidder behavior can be *intentional* non-value maximizing behavior by managers of the bidding firm. There are at least two theories in this regard, arising out of agency conflicts between managers and stockholders. Shleifer and Vishny (1988, 1989) state that managers may display such conduct due to their strong preference for the status-quo, and promote self-entrenchment by investing in businesses they are presently running,

irrespective of the effect the acquisition may have on the value of the firm.[8] In these cases, managers do not overpay because they make mistakes out of ignorance (winner's curse) or enthusiasm (hubris). Rather, they make an overpayment for the benefits of the acquisition that *they* care about but the shareholders do not e.g. increasing the size of the firm, diversifying the firm to minimize their employment risk, making themselves less replaceable etc. Jensen's (1986) theory of free cash flow suggests that managers of firms having access to unrestricted excess cash flows (due to the absence of positive net present value projects) manifest their divergence of interests with the stockholders by making value reducing acquisitions instead of distributing the excess cash to the stockholders.

2.3 White Knight (WK) Behavior

2.3.1 Theoretical Studies

Giammarino and Heinkel (1986) have constructed a theoretical model of dynamic takeover behavior based upon asymmetric information among participants regarding the synergy gain from the takeover. Here, the first bidder, called the "informed" bidder, possesses potentially superior information about the synergistic gains, which is not available to the target or another "uninformed" bidder (here) called the WK. To overcome the informational disadvantage, the WK is structured with some tactical advantages so that it can enter the bidding and impose

23

competitive discipline on the informed bidder. These advantages accrue from specific sequential structures imposed by the model on the bidding process. In particular, the WK is aware of the information set of signals of the informed bidder and it is accorded the privilege of making the last bid. The model has, as one of the equilibrium consequences, potential overpayment by the "uninformed" WK in acquiring the target at a cost in excess of the realized synergy gains. However, the model is based upon sequential bidding where no single bidder can successively bid more than once. This does not always occur in multiple bidding situations for corporate acquisitions. Besides, the model compels the WK to bid last to compensate for informational asymmetry; it further assumes that the extent of synergy gain is common to all bidders, which is unlikely to be valid in reality.

In contrast, the sequential bidding model of Shleifer and Vishny (1986b) models the WK as an antitakeover defense and provides a rationale for payment of "greenmail" in the context of target shareholder value maximization. In their model, the target's access to the WK is the only source of asymmetric information between the parties in the takeover contest. They posit that the presumption of the existence of a WK makes potential subsequent bidders shy away from a control contest. The WKs' entry into the contest is controlled, to some extent, by the target's managers who

possess private information about the source of gains from a takeover by the WK. The WK can thus have synergistic gains only if the cooperation of the target management is available. The information regarding the inability of the target managers to identify a WK is a signal which is revealed to the market (and to other potential bidders) through payment of "greenmail" to the HB. Other prospective bidders are thus no longer deterred by the possible existence of a WK, and incur costs to acquire information to make higher bids for the target. Thus, if the target feels that the first bidder's bid is not adequate, and other bidders are not incurring costs of acquiring information and coming forward to bid because they apprehend that a WK is waiting in the wings, then the target will either inform the market of the absence of a WK or conceal the WK's existence by paying "greenmail", thereby encouraging other bidders to bid. Otherwise, only the first bidder and the WK will participate in the auction process. In this model, the WK is not structured to overpay due to the existence of specific potential synergies in a WK acquisition. Also, hostile tender offers can result in one of two scenarios: the payment of "greenmail" followed by further bids, or acquisition by a WK. The analysis is not exhaustive since a number of hostile tender offers have resulted in the acquisition of the target firm without payment of "greenmail" or WK intervention.

Both of the models discussed above assume that managers act in the best interests of the respective stockholders. Yet, this may not necessarily be true in the light of agency conflicts between managers and stockholders.

2.3.2 Empirical Studies

There has been only one published study till now which explicitly deals with White Knights (WKs). Smiley and Stewart (1985) look at a sample of 44 tender offers over the period 1972-1978 that involve WKs. They conclude that WKs, as a group, do not earn significant abnormal returns before or after a tender offer. Firms that choose to become WKs in contested takeover bids come from different industries but have substantially higher leverage and lower cash turnover than other control firms. Unlike WKs that fail, WKs that succeed systematically belong to industries that have performed better in the previous five years. There is some indication that faced with poor industry performance, WKs seek to diversify out of the industry. Smiley and Stewart do not state either their sources or the criteria used for their sample of WKs. By inference, their WKs seem to be second bidders who are inducted by investment bankers into the takeover battle, independent of final outcome. The authors also use monthly data in an event study framework, which makes it considerably more difficult to capture firm specific events and interpret the effect of the dynamic market processes pertaining to these contests.

Mikkelson and Ruback (1985a), in a study of the interfirm equity investment process, document additional positive abnormal returns to shareholders of first bidders on subsequent bids by "third parties" which will presumably also flow to the shareholders of the target. Though not explicitly identified as such, WK bids will be a subset of such subsequent bids by "third parties".

Bradley, Desai and Kim (BDK - 1988) implicitly deal with White Knights while focussing on multiple-bidder contests in their study of all *successful* tender offer contests between 1963 and 1984.[9] They observe that successful tender offers increase the combined value of targets and acquiring firms by 7.4%. Competition among bidding firms increase the returns to targets and decrease the return to acquirers. Unlike the single bid acquirers, multiple bid acquirers do not seem to earn significant positive cumulative abnormal returns (CARs) around the event date, especially in the eighties. BDK (1988) ascribe these results for multiple bid acquirers to the laissez-faire policies of the federal government, the introduction of sophisticated antitakeover tactics, and the proliferation of investment banking firms which specialized in raising funds to finance takeovers.

On further investigation, BDK (1988) find that the insignificant positive abnormal returns or negative abnormal returns earned by multiple bidder acquirers can be ascribed

27

to the significant negative CARs earned by "late bidder acquirers, more commonly known as white knights."[10] This feature is contrasted to first bidder acquirers in multiple bid contests, who earn a significant positive CAR. It is our view that the WK nature of a bid is not fully captured by categorizing all late bidder acquirers as WKs. Our definition of a WK bid, defined and explained at the beginning of Chapter 4, is considered to be more representative of this category of bids.

2.4 Agency Theory and Negative Bidder Returns

Negative price reactions to acquirer bids do not, in themselves, have to reflect conflict of interest. Such reactions can be explained by errors or differences of opinion between managers with inside information and stockholders without such information. This asymmetry of information between managers and stockholders results from delegation of authority (Coughlan and Schmidt, 1985). Besides, a fall in stock price does not necessarily indicate that the manager benefitted. On the contrary, the manager may also have suffered through stock ownership, in which case there will actually be an alignment of interests. An effective compensation plan, if successful in aligning interests, will require a movement in the same direction for both the change in the stock price and the change in the compensation.

However, if the wealth reducing acquisitions of some bidders, especially late bidders like WKs, are indeed a reflection of deliberate non firm-value maximizing behavior of their managers, a possible reason can be the inability of available mechanisms to reduce agency conflicts and align the interests of the managers with those of their stockholders. In this regard, Mikkelson and Ruback (1985b) mention that the following mechanisms are available to limit management from pursuing its self-interest:

- Efficient functioning of the managerial labor market.
- Hostile tender offer in the market for corporate control.
- Compensation package aligning the interests of the stockholders and managers.

The efficient *managerial labor market* theory (Fama, 1980) states that there exists an efficient market for executives. Any action initiated by managers and perceived to be non firm value maximizing promptly reduces the value of the managers in the marketplace. However, Dyl (1988) shows that better internal monitoring, rather than the existence of an external managerial labor market, limits the pursuit of self-interest by managers. The efficacy of the *hostile tender offer* is difficult to anticipate ex-ante. Mitchell and Lehn (1990) posit that there is a stronger likelihood that bidders in value reducing acquisitions become targets of hostile bids in future. However, the empirical evidence

29

in this regard is not conclusive with a large number of
value reducing acquirers remaining as nontargets, possibly
because a part of managerial self-interest also consists of
making the firm unattractive as a takeover target.

2.5 <u>Manager Motivation Through Compensation</u>

As stated above, one of the ways to limit agency
conflict is to design appropriate *compensation packages* for
manager motivation and the alignment of manager-stockholder
interests. As Coughlan and Schmidt (1985) point out,
compensation packages based exclusively on stock price
performance are inefficient methods for compensating risk-
averse executives, since stock price variation can be caused
by systematic risk factors outside the executives' control.
Risk averse executives will demand compensation premiums to
neutralize the wide fluctuations in compensation that is
caused by these events. On the other hand, the introduction
of stock purchase plans, though yielding positive abnormal
returns, may not be interpreted as being exclusively due to
a change in contracting which results in a better alignment
of manager stockholder interests (Bhagat, Brickley and
Lease, 1985). The same phenomenon can, as well, be
explained as a signal of the management indicating better
future performance.

In the **management** literature (Kerr and Bettis, 1987;
Finkelstein and Hambrick, 1989; Tosi and Gomez-Mejia, 1989),
a distinction is made between owner-controlled firms where a

dominant stockholder controls more than 5% of the stock, and management-controlled firms where stock ownership is dispersed. Manager-owned firms are a subset of owner-controlled firms where management holds more than 5% of the stock and is thus one of the dominant stockholders. The owner in owner-controlled firms views the firm as an investment and has the power and the incentive to reduce agency conflict by aligning compensation of the managers to performance of the firms. As such, executives in these firms receive more compensation for performance and less for the scale of operation than managers in management-controlled firms. Managers in owner-controlled firms thus have to bear more compensation risk. There is a decoupling of pay from performance for management controlled firms.

2.5.1 Compensation Structures

The literature relating to determinants of managerial compensation is extensive, stretching across practically all disciplines in the social sciences. At the outset, we note that a large number of studies have shown a strong econometric association between firm size and managerial compensation, presumably because executives of bigger firms oversee more resources, large firms have more ability to pay, and there are more hierarchical layers in large firms (Ciscel and Carroll, 1980). However, we are more concerned here with the determinants of managerial compensation in so far as they *motivate* managerial incentive issues through

ownership of common stock and stock options. As Miller and

Scholes (1981) point out in their study of the tax incentive

effects of compensation plans, compensation solely in the

form of the firm's stock can make managers less willing to

undertake risky investments than the stockholders wish, as

the managers will have to carry the total risk instead of

only the undiversifiable risk carried by the stockholders.

In contrast, a manager's incentives to adopt very risky

policies that stockholders are likely to reject will

obviously increase if compensation is solely in options in

the firm's shares than in the shares themselves.

Lewellen, Loderer and Martin (LLM - 1987) conduct an

interesting study seeking to link managerial decisions with

the structure of managerial pay. They highlight different

dimensions of the agency conflict and posit that varying

incentive features in compensation contracts are motivated

by the need to solve diverse aspects of owner-manager

conflicts of interest. Thus, instead of a formal model of

compensation design, they look for the detection of

empirical regularities in compensation structures that can

assist in explaining owner-manager agency relationship.

According to LLM (1987), the two issues in the agency

problem of the manager are the time horizon problem (viz.

that the executive does not have an infinite time horizon

like the stockholder) and the risk exposure problem (viz.

finding an optimal allocation of risk sharing between

managers and stockholders). Deferred compensation can
ameliorate the limited horizon problem of the managers; yet
it can simultaneously increase their risk exposure by
increasing the share of managerial wealth tied to the future
financial health of the firm.

LLM (1987) contend that stock based pay, which is a
variable claim on the firm's cash flows, can deal with the
twin problems of underleveraging and underinvestment. If
managers have a fixed claim on the firm's cash flows, they
might tend to favor a lower level of indebtedness for the
firm since debt will compete with their claims to the same
lower tail of the firm's cash flow distribution. Also, if
fixed income claims of the firm's managers predominate, and
the firm's bankruptcy risk is non-zero, the managers may
favor investment policies which reduce the variance of firm
value to reduce the personal risks they bear - even if those
policies lower the firm value. In contrast, through stock
based pay, managers have title to part of the residual after
fixed claims have been met. Potential underleverage
tendencies of management are thus addressed. Stock based
compensation also does not provide the incentive to managers
to undertake investments that decrease share prices.
Further, if the firm is levered, such compensation to
managers will raise the payoff from variance-increasing
investments.

However, unlike other market investors, managers cannot easily diversify away the diversifiable risk of the firm under their management. Their stock-related compensation claims, together with direct holdings of the common shares of their companies, are likely to represent a substantial portion of their personal wealth. Therefore, increasing the percentage of stock-related compensation may actually make management more reluctant to choose high variance investment projects because a higher proportion of stock in their compensation adds to their risk exposure. In principle, executives can counterbalance this effect by reducing their existing holding of the firm's shares but this may be considered as a bad signal by the market. Further, managers may be prohibited by their contracts from selling off their holdings of the firm's stock before a predetermined time interval. Capital gains realizations can further inhibit portfolio rebalancing by managers. Managers will thus bear increased firm specific risk as emphasis on stock related forms of compensation rises.

LLM treat the problem of risk exposure as an empirical issue and find that the incentive effects of higher variance of stock returns and higher levels of debt overwhelm the increased personal portfolio risk exposure (diversifiable) of the manager. Empirical evidence reveals that stock based pay effectively prevents excessively conservative investment policies.

Jensen and Murphy (1990) investigate the influence of compensation in aligning manager-stockholder interests by estimating the extent to which compensation policy in the form of performance based bonuses, salary revisions and stock options actually provides value increasing incentives to managers. They find that on average, an increase of $1000 in shareholder wealth results in an increase of only $3.25 in the wealth of the Chief Executive Officer (CEO). This empirical relation, while positive and significant, is considered small for an occupation where incentive remuneration is expected to play an important role, and is thus inconsistent with the formal agency model of optimal contracting. Such a model postulates that a risk neutral executive has incentives to pursue stockholder wealth maximizing activities only when he/she gets 100% of the marginal surpluses arising out of such activity. However, pay-performance contracts in conformity with this model are not feasible since executives with limited resources cannot credibly commit to pay firms for large negative realizations of firm performance, and shareholders cannot credibly commit to huge bonuses that amount to giving away the firm.

In actual practice, the managers are not risk neutral, and their costs of bearing risk are considerably higher than those of widely diffused shareholders holding well-diversified portfolios. Thus, requiring these risk-averse executives to take actions which will enable them to get

100% of the marginal profits in **risky** projects (in terms of an optimal agency model of incentive contracting) subjects them to unacceptably large risks. On the contrary, if the primacy among firm goals is shifted from stockholder wealth maximization to efficient risk sharing by way of transfer of risk from managers to stockholders, then executives can be given contracts where they will get only a fraction of the marginal surpluses arising out of their performance. But this will generate agency costs because the executive incentives for performance will become poorer. Optimal compensation contracts need to reflect the trade off between the goals of providing efficient risk-sharing and providing the CEO with incentives to take appropriate actions.

Though agency models seem to be unable to explain the observed small pay-performance sensitivity, executives remain important agents, and incentives are important for them. Jensen and Murphy suggest an alternative hypothesis to explain the observed pay-performance relationship for executives. Their hypothesis states that political forces operating in both the public sector and inside organizations limit large payoffs for exceptional performance. Truncating the upper tail of the payoff distribution requires that the lower tail of the distribution also be truncated to maintain levels of compensation consistent with equilibrium in the managerial labor market. This implicit regulation of executive compensation is the reason for the declines in the

pay- performance relations since the 1930s. Jensen and Murphy also find that the relation between compensation and ownership is independent of insider stock ownership.

In the **economics** literature, the inability of agency theory to explain the high levels of CEO compensation has given rise to the determination of the value of this compensation as a tournament (Lazear and Rosen, 1981; Rosen, 1986). Here, executive salary structures are likened to a series of tournaments or lotteries among contestants. Winners of the tournament at a lower level in the executive ladder are allowed to enter the next tournament at the following higher level. The compensation of the CEO is the prize in the lottery; so those below this level give up some of their earnings to be put into the prize for which they will all compete. Difficulties in monitoring executive effort (the principal-agent problem) and the tendency for employees to be more risk-averse than firms combine to make such lottery arrangements preferable under certain conditions. This provides the theoretical justification for the large difference between CEO salary and that of other executives at the immediately lower level. The social comparison theory (O'Reilly, Main, & Crystal, 1988) originates out of **psychology**. The theory is based on the observation that CEO salaries are determined by the compensation committee of the Board of Directors. The members of this committee are often outside directors

holding CEO positions in other firms. As such, it is possible that a social comparison process operates between the various CEOs sitting on the Board, with the compensation of the firm's CEO being determined in part through a comparison process by the compensation committee members. Since the CEO exerts informal influence in selecting new board members, the selection process itself can raise the CEO compensation.

There is an increased awareness in the literature that it is difficult to model entire compensation packages, and it might be more fruitful to look at the determinants and consequences of the type and mix of these packages (Finkelstein and Hambrick, 1988).

2.5.2 Managerial Ownership of Stock

Lewellen, Loderer and Rosenfeld (LLR - 1985) attempt to relate the personal wealth circumstances of managers to the stock returns to bidders. They state that the possible incentive effects of mergers arise out of stock ownership, and mergers cannot be intentionally wealth reducing. In fact, stock ownership is an important means for inducing and bonding managers to act in the interest of shareholders (Bentson, 1985). But if the manager does not own stock, the primary incentive for a merger will be to reduce the variance of managerial compensation possibly leading to value-reducing acquisitions. LLR (1985) conclude from their analysis that if one observes non-random negative abnormal

38

stock price performance by the bidder ex-post, one can infer, with a fair degree of certainty, that the merger which produced that result is not initiated by a firm whose managers have large own-company holdings. In fact, low ownership creates its own set of incentives which cannot be offset by contractual arrangements and competition in the managerial labor market. However, the paper does not conclusively show that investment decisions differ systematically between firms with high and low management ownership of common stock. There is also no direct evidence that mergers with negative stock returns represent conflict of interest.

Morck, Shleifer and Vishny (MSV - 1988) carry out a detailed study of the relationship between management ownership and firm valuation arising out of management performance. According to them, as management ownership rises, there is a reduction in the agency costs to the firm due to the deviation of managers from firm value maximization. This convergence of interest hypothesis implies that market value increases with management ownership. Conversely, with large ownership, managers can indulge in non-value maximizing behavior without worrying about market control features like managerial labor market, product market, or hostile takeover market. This is named the entrenchment hypothesis.

Using Tobin's Q to measure market valuation, MSV (1988) observe a non-linear relationship between manager ownership and firm value. Between 0% and 5% ownership, the value of Q rises. This seems to support the convergence of interests hypothesis. However, the fact that managers of large Q firms have more stock can also be explained by other reasons. For example, the manager's stock position can come from remuneration, and firms that do well are more likely to give managers stock bonuses or have managers exercise their stock options. Also, if the entrepreneurial ability or a money-making idea of top management is rewarded with a higher equity stake in the firm, firms with a lot of such intangible assets will have a higher Q and higher ownership. Further, firms with high Q may require a higher ownership for proper management of assets. Besides, managers expecting high future profits might retain higher stakes. The retention of higher stakes by the management then conveys a positive signal to the market and results in a higher stock price. In addition, firms with a young capital stock might have a higher measured Q than older firms, and might also have higher management ownership, since less time has passed for initial stakes to get dissipated.

If management ownership falls in the 5% to 25% range, entrenchment seems to dominate incentives, since the Tobin's Q falls as manager ownership rises. The entrenchment can be due to the status of the manager as founder, enhanced voting

power, increased tenure with and attachment to the firm,
lower employment of professional managers, and dominance of
insider directors on the board. According to MSV, the
negative effect of higher manager ownership on Q is not an
indicator of inefficiency and may reflect the optimal trade-
off between profits and private benefits to the management
from non value-maximizing behavior. Though it seems that
non value-maximizing behavior is more prevalent in
corporations in which management has greater effective
control, these may also be the firms in which management's
private benefits of control are the greatest. The higher
level of non-value maximizing behavior in these firms then
simply reflects the fact that management values such
behavior more and therefore the efficient level of such
behavior is higher. Simultaneously, there are probably
severe limitations on executive pay and the degree to which
management can be bribed to take particular actions. Without
side payments, corporate decisions will not necessarily
maximize the sum of cash flows and private benefits to
management because the party with effective control will
make corporate decisions according to his/her personal
preferences.

When manager ownership reaches 25%, Tobin's Q again
increases with manager ownership, revealing that the
management is totally entrenched and free of outside
challenge, so incentives can start working again.

The main problem with the analysis detailed above is the use of Tobin's Q to measure market valuation of firms. However, as MSV (1988) mention, an event study approach cannot be used because there are hardly any large unexpected changes in ownership structure uncontaminated by accompanying news like corporate control contests.

Stulz (1988) offers a theory relating management ownership to Tobin's Q that focusses on the takeover process. In his theory, management's preference for control (and consequent refusal to tender its shares) forces acquirers to pay higher premiums to gain control when management's stake is higher; this sometimes leads to an increase in the target's ex-ante value. When management's stake is so large that no takeover can be profitable, the ex-ante takeover price includes no takeover premium, and is therefore low. Stulz's theory differs from Jensen and Meckling (1976) at the lower end of management ownership since increased shareholder welfare from higher management ownership results from more effective opposition to takeovers and not from better alignment of management and shareholder interests. Stulz's theory is closely related to the entrenchment hypothesis of MSV (1988) at the higher end as high management ownership effectively precludes a takeover.

2.5.3 <u>Managerial Ownership of Stock Options</u>

There have been relatively few studies relating the incidence of stock options to management behavior. In a study of changes in managerial incentives on initial adoption of stock option plans, Lambert and Larcker (1984) hypothesize that the adoption of stock option plans affect the executive's risk preferences leading to changes in the executive's actions that impact on the variability of the firm's stock price. Standard option pricing analysis indicates that the variability of the firm's stock price is an important factor for determining the value of a stock option to an executive. The incorporation of stock options into the managers' compensation contracts will encourage them to increase the variability of the firm's stock price and make them less averse toward risk. However, if the executives are unable to create a riskless hedge (because of their inability to short sell the stock of their own firm) and they are further unable to transfer the option, the value of the option need not increase in variance. In fact, the authors find that the adoption of the plan is associated with a decrease in both unsystematic risk and total variance of equity returns.

Lambert and Larcker conclude from their study that the institution of a stock option plan may not be useful if executives are more risk averse than the extent desired by stockholders. The adoption of the stock option plan, while

helping to synchronize manager-stockholder interests and lengthening the manager's decision-making time horizon, can actually increase the risk-aversion of the executive. The design of stock option contracts (for the purpose of mitigating a manager's risk aversion) may thus require an assessment of the interaction between the degree of managerial risk-aversion and the rate of return and the variance of the firm's stock.

Agrawal and Mandelker (1987) investigate the effect of managerial incentives created by holdings of stock and stock options on the investment and financing decisions of the firm. Since managerial decisions are influenced by personal wealth considerations, a manager's holdings of common stock and options will be related to the characteristics of the investment decisions made by the firm and the resultant changes in the variability of the firm's assets. Three kinds of investment decisions are examined in the study - acquisition by mergers, acquisition by tender offers, and divestiture by selloffs. The study also seeks to find a relationship between a manager's security holdings and the firm's financing decisions.

The managers have opposing incentives in the selection of risky projects. They like to select investment projects that reduce the variability of the firm's earnings stream, due to overinvestment of human capital in one firm and underdiversification of the personal wealth portfolio. This

incentive is strengthened by the fact that the variance of
their employment income is increased and the certainty
equivalent of the cash flow stream of their income is
reduced if there is an increase in the variance of the
firm's assets.

In contrast, from option pricing considerations, the
existence of risky debt causes the value of stock to
appreciate as the variance of the firm goes up. Further, an
increase in the variance of the firm enhances the variance
of stock. Large stock and option holdings can thus induce
managers to select variance increasing corporate
investments. On the financing side, a reduction of
financial leverage augments the value of the remaining risky
debt because bondholders get better protection on their
claims. If the financing decision is to have no impact on
the value of firm, there must be a diminution in the value
of old equity and executive stock options. This will
further imply a reduction in the variance of stock returns.

Agrawal and Mandelker (1987) find that the relative
stock and option holdings of managers of the group of firms
that select investments resulting in variance increases
(increase in risk) is considerably higher than that for the
variance decreasing group of firms. Hence, executives'
security holdings induce them to make investment decisions
in the interests of their stockholders. Executive security
holdings are also observed to curtail agency problems

between managers and stockholders with respect to the firm's financing decision. There is a decrease in stockholder's wealth when leverage is lowered. Managers with low stock holdings are thus more likely to reduce leverage.

Having reviewed the relevant literature, we now turn to an examination of corporate control contests as they relate to the issues in this dissertation.

ENDNOTES

1. When, however, the takeover effort failed, generally all the gains to the target from the merger activity were lost (Bradley, Desai and Kim, 1983).

2. Dennis and McConnell (1986) show (for their sample) that the dollar gains are comparable for bidders and targets, despite the marked difference in percentage returns because bidders outsize targets by large amounts. Thus, in dollar terms, both benefit equally from the merger. However, these results are slightly at variance with those of a similar study conducted by Malatesta (1983). Malatesta finds an insignificant dollar *loss* for the bidding firm. The two studies are, however, not strictly comparable as the event dates were different (merger announcement date for the Dennis and McConnell study and around the month of board approval for the Malatesta study).

3. In these studies, the samples cover only the decades of the 1970s and the 1980s.

4. According to a Historical Note in Mergerstat Review (1982), "hostile raids as an established acquisition strategy originated in 1974 when Morgan Stanley & Co. represented International Nickel Co. of Canada in its hostile and successful offer for ESB, Inc. The fact that Morgan Stanley, a reputable investment banking firm, was engaged in such action rendered the hostile takeover an acceptable practice. The prevalence of takeover battles resulted in a specialized industry consisting of investment bankers, attorneys, proxy solicitors, and public relations professionals, all of whom were offering expertise on offensive and defensive tactics." - p. 43.

5. Schipper and Thomson (1983) show that bidding firms generate positive abnormal returns during the announcement of an acquisition policy. Studies on bidder returns generally measure the impact of implementation of the policy.

6. Tobin's Q is defined to be equal to the ratio of the firm's market value to the replacement cost of its physical assets. Tobin's Q is high when the firm has valuable intangible assets in addition to physical assets, e.g. monopoly power, goodwill, a stock of patents, or good managers. Measurement difficulties make the Tobin's Q an imprecise estimator of firm performance.

7.   Seyhun (1990) seeks to provide empirical evidence for this point of view through a study of stock transactions of top managers of bidding firms for their personal accounts as signals of their motivations.

8.   The rationale of Shleifer and Vishny (1988, 1989) is consistent with earlier explanations of managerial behavior in the context of conglomerate mergers, where managers were posited to be diversifying their employment risk through acquisitions (Amihud and Lev, 1981; Amihud, Dodd and Weinstein, 1986). However, Lewellen, Loderer and Rosenfeld (1989) do not find any empirical evidence of reduction in firm risk as a result of mergers.

9.   BDK (1988) have two partitions, in 1968 and 1980, over the range of their sample period from 1963 to 1984. Since hostile bids originated in 1974 (see footnote 4 above), the incidence of multiple bids can only be significant for that segment of the time interval 1969-1980 which occurred after 1974. As such, a more revealing comparison of single bid acquirers with multiple bid acquirers could perhaps have been made with an additional partition of the sample in 1974.

10.   BDK (1988) further state that "our data indicate that the average white knight pays 'too much' for the target it acquires" - p.25. No reason or explanation is offered for such overpayment.

CHAPTER 3

CONTROL CONTESTS INVOLVING WHITE KNIGHTS

3.1 Description of WK Contests

One of the successful ways by which a target can fend off an unwelcome bidder in a corporate control contest is to invite a friendly third party (the WK) to subsequently bid for the target and acquire it. This may not be a preferred outcome for the managers of the target, who may much rather have their firm retain its independent existence for the foreseeable future. Yet, on being confronted with a bid by a HB, they may be left with no alternative than to choose to be acquired by the friendly WK.[1] In a corporate control contest, the WK bid has several features and motivations not readily found in other corporate control situations. These are:

(i) From the WK's point of view, it is a takeover bid which makes the battle for corporate control at least a three-party contest consisting of a target, a hostile bidder, and a friendly bidder. The same target simultaneously entertains both a hostile bid and a friendly bid in an auction market for the target.

(ii) From the target's point of view, it is an antitakeover defense against the HB following a takeover bid, thereby yielding a strong positive target shareholder wealth reaction unavailable in other anti-takeover defenses.

(iii) The original HB or other potential bidders always have
      the option of offering a higher bid than the WK,
      thereby enlarging the auction process. The antitakeover
      defense of the target firms' managers may be said to
      have failed, and their own future may be in jeopardy,
      if the WK does not finally prevail. Yet, through the
      process, target shareholders may gain significantly as
      bids pile up on top of one another.

(iv) The WK bid may be looked upon as an acquisition-based
      preventive antitakeover measure of the WK, masquerading
      as a subsequent friendly bid. By acquiring the target,
      the WK makes itself larger and more difficult to
      acquire.[2] In the process, it may also remove some of
      its own attractiveness as a takeover target e.g. excess
      cash. However, the unplanned nature of the WK bid
      may makes this antitakeover outcome more a consequence
      of the process than a motivation for the WK to
      undertake such activity.

We feel that the various distinguishing features of
WKs, as outlined above, make takeover battles involving WKs
a singularly appropriate framework for a detailed study of

- the bidding process in corporate acquisitions,

- managerial motivations in the firms involved in
  these processes, *and*

- investor reactions to activities in the multiparty
  corporate control market.[3]

In a two-bidder context where the motives of the
bidders may not be identical, an acquisition effort for a
target firm has a lot of similarities with auction activity
(Roll, 1986). In fact, Fishman (1988) analyzes competitive
bidding in takeovers by initially assuming it to be
equivalent to an *English Auction*,[4] with the bidders
initiating the bidding process rather than the target
offering itself for sale.[5] The base price of the target
firm is likely to correspond to the current market value of
its stockholders' wealth when the bidding begins.
Presumably, the first bidder makes its bid after a careful
scrutiny of the target firm. The amount it ultimately pays
for the target will be capped by the lower of:

(a) the potential of the target to generate wealth

(through future activity, divestiture, spinoffs, or

outright restructuring/sale of assets) in excess of

the amount paid by the bidder to the target firm, *or*

(b) The resources which the bidder is able to assemble for

the purpose of the takeover.

In practice, the bidding typically begins at a lower level
and may not reach values where resource constraints come
into play.

The WK enters the auction after the control contest has
begun. Since the primary intent of the WK bid seems to be
to support the "friendly" management of the target firm, it
is unlikely that the WK firm has made a prior (planned)

51

evaluation of the value of the target to it as an acquisition.[6] Once the control contest has begun, there may be inadequate time for an appropriate independent scrutiny. We may thus reasonably conjecture that the WK has undertaken little detailed examination of the target firm,[7] or else the WK itself may have been the likely acquirer in a friendly takeover.[8]

3.2 Bidding Variations in WK Contests

A detailed investigation of the sequence of bidding in the control contests with WK participation reveals three distinct market processes as follows:

(i)   The common occurrence is for the HB bid (H) to be rejected by the target, and a follow up bid by a WK (W) leading to the withdrawal of the HB. This situation corresponds to the construct described by Giammarino and Heinkel (1986) and is the standard bidding situation.

(ii) In some instances, the first bid (H), on rejection, is followed up by a second (or even third) higher bid (H) by the HB. This is followed by the WK bid (W) and the withdrawal of the HB. This process is described under the bidding acronym HHW. The bidding pattern here does not precisely conform to the English auction structure, as the second higher bid is made by the HB. Yet, an auction does take place since the subsequent bid/(s) of the HB is/are followed by the WK bid.[9]

(iii) In some cases, the bidding is sequential (HW) as in
English Auctions, but the WK bid is followed by one or
more sequences of HW (e.g. HWHW) before the end of the
contest. Thus, in these situations, the HB bids at
least once after a WK bid, and the WK bids at least
twice after HB bids. This process is described as
alternating sequential bidding (ASB).

This review of market processes indicates that based on
the respective presence of HHW and ASB attributes, there are
two relevant partitions of these contests on the basis of
sequencing of bids:

- Instances where the WK bid is the *third* bid (W) in the
sequence after two consecutive bids (HH) by the same
HB - the HHW WKs - are distinguished from other cases
of sequential bids (H always followed by W) by
different parties from the first bid onwards - the
non-HHW WKs.[10]

- Instances of alternating sequential bidding, where each
of the pair of bidders has bid more than once on an
alternating basis - the ASB WKs - are separated from
the contrasting situation of only one sequence of HW in
the control contest - the non-ASB WKs.

3.3 Hypotheses - Bidding Behavior

In formulating the hypotheses below, we assume that the
target's valuation is not identical to the HB and the WK.
Since the WK bid has to improve upon the preceding HB

53

bid(s), it may end up overpaying the target firm to the detriment of its own stockholders.[11] In such situations, the WK stockholders and the pool of investors may not be favorably disposed to the actions of the managers of the WK in following a possible non-value maximizing strategy. Since these stockholders and the investors are likely to perceive the WK activity as a negative net present value project, their displeasure will likely be reflected in a significant fall in the WK stockholders' wealth. We thus hypothesize that on average, the WK stock price will react negatively to the WK bid.

3.3.1 Hypotheses Regarding HHW WKs

We hypothesize that the initial absence of sequential bidding in HHW cases will impact on the first WK bid. The fact that the HB submits a second bid immediately following its first bid can reasonably be interpreted to imply that

(i) The first bid is low, below the maximum the HB is willing and able to offer.

(ii) The second bid is likely to capture all or most of the anticipated gains for the HB.

This generates two competing hypotheses:

Overpayment Hypothesis: Since synergistic gains for the HHW WKs are likely to have been fully captured by the HB (through the second bid), there is a greater probability of the WK bid being an overpayment; the HHW WKs will thus have a larger negative abnormal return for the first WK bid.

54

This situation will be more likely for identical valuation of the target by the HB and the WK, and can lend strong support to the view that managers of *all* WK firms are indeed going in for growth maximization (Shleifer and Vishny, 1988) at the cost of firm value maximization.

"Correlated Values"[12] Hypothesis: For the HHW process, the WK seems to enter the auction process later - after two preceding bids. The HB's second bid is likely to alert the WK that synergistic gains to the HB have pretty much been captured in the existing bids. As such, the WK is not likely to enter the fray and overbid the HB - unless it is aware of *specific* synergies for itself in the acquisition, not available to the HB. Further, the fact that the WK bid comes sequentially after *two* HB bids signifies that the WK managers are more likely to have professionally evaluated the takeover. Thus, the WK is now in a much better position to avoid the "winner's curse." As McAfee and McMillan (1987) point out, the assumption relating to independent private values[13] is violated for correlated values of the object of the auction; in this situation, English auctions[14] (as the bidding process in these control contests constitute) result in a minimization of the "winner's curse."[15] For all the above reasons, the negative abnormal return for the HHW WKs is likely to be less than that for the non-HHW WKs.

3.3.2 The Time Interval Dimension

As stated in section 3.2 above, the WK bid is likely to be made in relative haste in the available time window after the HB bid. Necessarily, an important dimension in this process is time, which can be considered to be a proxy for the extent of appraisal made by the WK prior to its bid. As such, we posit that the time gap T between the first WK bid and the prior HB bid will influence the abnormal return (CAR) to the WK in a positive manner. The shorter this time span, the larger will be the negative excess return. We thus postulate (for later empirical examination) an equation of the form

$$CAR = \alpha + \beta_1 * D + \beta_2 * T + \epsilon \qquad (1)$$

D is a dummy representing WKs under the HHW market process. The negative reaction to the WK bid will lead to a negative sign for the estimator a of the intercept. The "correlated values" hypothesis stated in section 3.3.1 will imply a positive sign for b_1, the estimator of the coefficient of the dummy variable representing WKs under the HHW process. The overpayment hypothesis will imply the opposite sign for b_1. In other words, the existence of the HHW feature will result in a lateral reduction in the negative CAR for WKs. The sign of the estimator b_2 for the coefficient of the time interval variable will be positive, to corroborate the position that the lack of extensive

examination of the target (for which the time interval is a proxy) causes the negative CARs for WKs.

3.3.3 Hypotheses regarding ASB WKs

In respect of the ASB WKs, there are two competing hypotheses:

Repetition Hypothesis: In the ASB market process, sequential auction-like bidding recurs. Each subsequent bid of the WK can be looked upon as a repetition of the sequence begun by them with their first bid. If the reaction to the first WK bid is negative, there will be significant negative abnormal returns for the subsequent WK bids as well. While the HB's second bid will indicate to the market that their bidding margin is not yet exhausted, this bid will appear in the second sequence and hence not be known to the WK stockholders when they react to the first WK bid. They will thus react to the subsequent bids of the WK managers in the same way in which they reacted to the first (i.e. not expecting a subsequent HB bid), perhaps more severely so, assuming at each stage that the WK managers have overbid. Also, if this hypothesis is true, the outcome of the contest will be more likely to be successful acquisition by the WK.

Recovery Hypothesis: Alternatively, one can hypothesize that the losses suffered in the first WK bid will be recovered in the subsequent WK bids; for the existence of subsequent HB bids indicates that the first WK bid is more likely to have been a firm value maximization strategy.

This situation is more likely for identical valuation of the target by the HB and the WK. The higher HB bid can then be taken as a signal of target value, and market reaction to the subsequent WK bids will neutralize the negative reaction to the first WK bid.

3.4 Hypotheses - Managerial Motivation

The hypotheses laid out in this section require a consideration of the conflicting hypotheses regarding the bidding behavior of WKs and their various partitions based on bidding sequence. This consideration requires that we preview the results from testing the bidding sequence hypotheses. We accordingly posit the managerial motivation hypotheses based on the results of testing the hypotheses regarding bidding behavior elucidated in the preceding section, and drawing appropriate inferences from the same (as discussed in chapter 5). Specifically, the "Correlated Values" hypothesis is seen to be valid for WKs under the HHW market process, and the Repetition hypothesis is seen to be valid for the WKs under the ASB market process. The hypotheses in this section are further motivated by the following premises:

- The presence of stock and stock options in compensation packages provides incentives to managers to maximize the value of the stock of the firm and hence align their interests with those of the stockholders. Agency conflicts between stockholders and managers are thereby

minimized. Managers will thus be more inclined to undertake actions which maximize the value of the firm if they have a larger proportion of their compensation in the form of stock and stock options relative to other cash and cash-equivalent forms of compensation.

- Conversely, a relatively larger proportion of cash and cash-equivalent forms of remuneration in managerial compensation packages is likely to provide incentives to managers for maximizing the *size* of the firm: the strong positive empirical relationship between firm size and cash and cash-equivalent forms of compensation is well documented. The lower proportion of stock and stock options in this kind of remuneration package will likely not encourage managers to conform to the stockholder goal of firm value maximization. On the other hand, the resultant incentive may well act to the detriment of the stockholders as managers are encouraged to undertake value-reducing acquisitions with the sole objective of increasing size and thereby increasing their cash compensation.

- The presence of relatively higher levels of debt in the capital structure of firms is likely to imply the existence of better monitoring mechanisms for a closer scrutiny of the managers' actions. The additional supervision arising out of the existence of debt can

thus be a disincentive to the managers for actions which do not maximize firm value.

In the above context, it becomes necessary to evaluate the relative influence on observed WK behavior of the two competing kinds of managerial remuneration - one aligning the interests of the managers with those of the stockholders (in the form of managerial ownership and holdings of stock options) and the other motivating an increase in size (in the form of cash and cash-equivalent compensation). Three issues of concern need to be addressed here. They are as follows:-

- The variables used in the analysis need to be defined as ratios in order to incorporate the incentive effects of both stock (and stock option) ownership and cash remuneration.

- To the extent feasible, the variables used in the analysis need to be normalized for size.

- To provide economic content to the ratios defined, both the numerator and the denominator need to be expressed in comparable units.

Since stock and stock option ownership are "stock" variables representing wealth, and cash and cash equivalent compensation is a "flow" variable representing income, the "stock" of common equity and options are converted to "flow" variables by multiplying the "stock" variable by the rate of return of the relevant common stock. As managerial

motivation is more likely governed by ex-ante expectations of income flows from managerial holdings, we consider it appropriate to use the *expected* rate of return (as opposed to a historical rate of return) on the relevant common stock when converting the "stock" variable to the "flow" variable. Also, by defining variables with cash compensation in the denominator, the impact (if any) of size on the variables is considerably reduced due to the strong empirical relationship between cash compensation and size.

The following variables of interest are accordingly defined:

INCENTIVE VARIABLES

$$1. \quad COM = \frac{\text{Annual expected income from stock holding}}{\text{Annual cash and cash-equivalent remuneration}}$$

$$2. \quad OP = \frac{\text{Annual expected income from stock options held}}{\text{Annual cash-and cash-equivalent remuneration}}$$

MONITORING VARIABLE

$$3. \quad DEQ = \frac{\text{Book value of outstanding debt}}{\text{Market value of common equity}}$$

We note in this regard that managerial motivation resulting from alignment of managers' interests with those of the stockholders is traditionally measured in the

61

literature (see chapter 2) through a variable MGR, defined
as

$$MGR = \frac{\text{Total shares of common stock held by managers}}{\text{Total number of common shares of the firm}}$$

Although size (for which the market value of total common
stock is treated as a proxy) and cash compensation have been
empirically found to be correlated, we maintain that the
direct incentive consequences of cash compensation cannot be
fully evaluated by using size as a proxy for the same.
While the hypotheses below are formulated and the study is
carried out using our constructed variables COM, OP and DEQ,
we have simultaneously reported the results using MGR
wherever appropriate.
We posit that

Hypothesis 1:

Ceteris paribus, managers of WK firms will have a
lower COM as compared to managers of HB firms.

Control HB firms are more likely to have managers acting in
the best interests of their stockholders. This is evidenced
by the absence of significant market reaction to the HB
bids, as detailed in chapter 5. The compensation packages
of the managers of HBs will presumably incorporate a greater

62

proportion of stock holdings (excluding unexercised stock options) relative to the compensation packages of the managers of WKs, to provide more incentive to meet the stockholder goal of firm value maximization. Since both the HB and the WK operate in control contests in the same time frame, any tax-incentive effects of compensation in the form of stock or stock options will be common to both groups and hence controlled for.

Hypothesis 2:

Ceteris paribus, managers of WK firms will have a lower OP than the managers of HB firms.

Stock options, a form of deferred compensation to deal with the time horizon problem of the manager, give him/her a stake in the firm's future cash flows, which are, after all, discounted at appropriate rates to yield shareholder value. This encourages the manager toward variance increasing investment projects which increase the value of the option. Yet, the options also increase the riskiness of his/her personal wealth which cannot be diversified away like that of investors. This may make him/her more reluctant to choose variance increasing projects. Available evidence seems to indicate that the incentive effects overwhelm those of increased risk exposure (LLM, 1987; Agrawal & Mandelker,

1987).[16]   Incentive effects for firm value maximization
are likely to be lower for WK firms, implying a lower
proportion of unexercised valid stock options in the
compensation packages of their managers.

Hypothesis 3:

Ceteris paribus, WK firms will have a lower DEQ
than HB firms.

The presence of higher levels of debt can ensure better
monitoring of managerial activity through bond covenants
(Smith and Warner, 1979). This tends to restrict the amount
of "free" cash flow available to managers (Jensen, 1986) and
hence makes them act in a firm value maximizing way.
According to this approach, managers will prefer relatively
lower levels of debt to avoid monitoring if they are
desirous of acting in a non firm value maximizing manner. On
the other hand, the same managers may have an inclination
for higher levels of debt based upon their holding of stock
options. The larger the risky debt of the firm, the greater
is the value of the stock options held by the manager,
because a reduction of debt causes a reduction in the
variance of stock returns as existing debt becomes more
valuable at the cost of equity and stock options. Managers
of WKs will likely have a greater propensity for "free" cash

flow and correspondingly, the WK firms will have a lower DEQ. However, this will be predicated on the managers of WK firms having low holdings of stock options relative to HB firms (hypothesis 2) and relative to other forms of compensation in the form of stock or cash (as observed empirically).[17]

Hypothesis 4:

Ceteris paribus, managers of non-HHW WK firms will have a lower COM as compared to managers of HHW WK firms.

This hypothesis originates from the extent and significance of wealth reduction on first or subsequent bidding by the WK, as discussed in chapter 5. For the HHW WKs, the cumulative abnormal return (CAR) is considerably less negative, and is not significant across all time intervals. In the two day interval ending with the date of the first WK bid, the average CAR is -1.0% and -4.1% for HHW WKs and non-HHW WKs respectively. Besides, 56% of the CARs are negative for HHW WKs and 85% of the CARs are negative for non-HHW WKs. These results do indicate that the market does not react as adversely to bids by HHW WKs as it does to bids by non-HHW WKs. This hypothesis seeks to link this external manifestation of WK bids to the incentive alignments in the

compensation structure of their managers in the form of
holdings of common stock of the firm. Support for this
hypothesis will indicate that managers of HHW WKs may indeed
be desirous of acting in a firm value maximizing manner as
per their remuneration scheme, yet be afflicted by hubris or
the winner's curse resulting in unintentional overpayment.
In this sense, the incentive alignments of managers of HHW
WKs may not be significantly different from those of
managers of HBs.

Hypothesis 5:

Ceteris paribus, managers of non-HHW WK firms will
have a lower OP as compared to managers of HHW WK
firms.

This hypothesis originates from the same premises as the
preceding one. Empirical support will indicate the
disinclination on the part of managers of non-HHW WKs to
engage in firm value maximizing activity.

Hypothesis 6:

Ceteris paribus, non-HHW WK firms will have a
lower DEQ than HHW WK firms.

The premises for the hypothesis are similar to the arguments used to support hypothesis 3. Empirical evidence in its favor will be an indication of monitoring effectiveness and the validity of the "free" cash flow hypothesis.

Hypothesis 7:

> Ceteris paribus, there will be no difference in COM, OP or DEQ between managers of ASB WK firms and managers of non-ASB WK firms.

In constructing hypotheses relating to managerial motivation, there is a critical difference between the HHW and ASB market processes for WKs. The distinguishing features of the HHW WK manifest themselves *prior* to the first WK bid. However, *prior* to the first WK bid, there is no difference between the standard HW sequence and the ASB market process. Accordingly, incentive-related variables may not affect ASB WKs differentially if the Repetition Hypothesis of bidding behavior is found to be valid. In such instances, the ASB process is perceived to be a repetition of the standard HW process with similar market reaction in each HW sequence. Hypothesis 7 is generated from the empirical validity of the Repetition hypothesis as an explanation for the bidding behavior of ASBs (shown in Chapter 5).

The various hypotheses presented above (supported by empirical testing) will indeed show the absence of homogeneity among WKs, and validate the basic partitioning of the sample according to the sequence of bidding. The return consequences for HHW WKs seem to be not much different from the HBs, with negative CARs during their bids being likely due to hubris or the "winner's curse". In contrast, non-firm value maximizing factors like size maximization or "free" cash flow consumption are more likely to govern the CARs for the non-HHW WKs. The ASB WKs manifest themselves as the extreme fringe of this latter group of non-HHW WKs in their bidding behavior. However, this feature will not be distinguishable from the incentive related behavior of their managers, which reveal themselves during their first bid.

In developing the aforesaid hypotheses, the behavior of managers of the various categories of bidding firms defined above are postulated to be motivated by the structure of their compensation packages and monitoring intensity implied by higher levels of leverage. Structural differences in these variables thus distinguish firms characterized by firm-value maximizing managers from others characterized by managers whose incentives may not propel them toward an objective of firm value maximization. Since the abnormal returns in the context of the market model measure the investor reaction to firm specific events, such returns are

an indicator of whether the market views the bidding event
as firm value maximizing. The variables representing
compensation and capital structures thus not only lead to
significant positive variation in the abnormal returns in a
cross-sectional context, but the resulting regression is
also able to identify structural differences across the
various groups of bidders. We thus specify the following
model:

$$CAR = \alpha + \beta_1 * COM + \beta_2 * OP + \beta_3 * DEQ + \epsilon \qquad (2)$$

where

    CAR = Two day cumulative abnormal return for the
           bidding firm ending on date of the bid.

    COM = Proportion of firm stock held by managers as a
           share of cash and cash-equivalent compensation.

    OPT = Proportion of unexercised valid stock options
           held by managers as a share of cash and cash-
           equivalent compensation.

    DEQ = Debt-equity ratio

Support of the various hypotheses stated above will
imply that the estimators of the coefficients of the
independent variables will all be significant and have
positive signs.

ENDNOTES

1. For a general management perspective on WKs, see
   Kesner and Dalton (1985) and Jennings and Mazzeo
   (1986). Though the relative articles have not been
   used for sample selection, the cases cited in the
   articles independently form part of our sample.

2. Lofthouse (1984) points out that an acquisition will
   make a firm more expensive to acquire. However, we do
   recognize the ambiguity of increasing size as an
   effective antitakeover strategy.

3. It is interesting to note, in this regard, that while
   there is substantial literature ascribing target
   managers' behavior in corporate control contests to
   "management entrenchment", especially in regard to
   antitakeover defenses, there is hardly any reference to
   such "entrenchment" for the bidder managers for any of
   their actions in these contests. If one accepts the
   hypothesis that target managers may not act in the best
   interest of their shareholders in control contests, the
   same possibility cannot be ruled out for the bidding
   firm's managers. This point was made by Shleifer and
   Vishny (1988).

4. McAfee and McMillan (1987) define an auction as "a
   market institution with an explicit set of rules
   determining resource allocation and prices on the basis
   of bids from the market participants." The
   distinguishing features of the *English Auction* are:

   - the price is successively raised until only one
     bidder remains.

   - At any point in time, each bidder knows the level
     of the current best bid.

5. Also, the object of the auction changes continually in
   contrast to the English auction where the object does
   not change for the duration of the auction (Khanna,
   1986).

6. We acknowledge the feasibility of a WK bid arising out
   of other reasons viz.

   - The bid could be part of a capital acquisition
     strategy by the bidder, with the WK nature of the
     bid being coincidental. The WK firm could also be
     following a policy of not making hostile bids, as
     part of its overall strategy.

- The bid could be in the nature of a large investment not for acquiring control, but for defeating the first hostile bid.

We deal with these motivations while discussing the results.

7. A detailed appraisal by the WK would have likely included an estimate of the maximum amount the WK should pay for the target after taking into consideration all the potential synergistic factors. The relative haste with which the subsequent bid is made by the WK also prevents an assessment of whether the HB has already reached the maximum value of its bidding range.

8. Lofthouse (1984) makes the point that if there is merit to acquisition by the WK, there seems to be no rational reason for it to risk a contested bid instead of going in for a preemptive bid.

9. If the process ended with a higher bid by the HB after the rejection of its first bid, it would be an economic bargaining process with no auction features. The auction is triggered by the WK bid.

10. In the HHW market process, the auction does not commence with the second bid, which is made by the same bidder who made the first bid. The first WK bid, which is the third bid in the sequence, triggers the auction.

11. As detailed in Chapter 2, the reasons for possible overpayment by the managers of bidding firms can be ascribed to hubris (Roll, 1986), to "winner's curse" (Varaiya and Ferris, 1987), to free cash flow (Jensen, 1986), and to growth maximization (Shleifer and Vishny, 1988).

12. A detailed description of correlated values in auctions is available in McAfee and McMillan (1987), p 720.

13. The assumption of independent private values postulates that any one bidder's valuation is statistically independent from any other bidder's valuation. Thus, each bidder knows precisely the value of the auctioned object to itself, but does not know the value of the object to the other bidders. Giliberto and Varaiya (1989) apply this concept to bank auctions.

14. It should be noted that the market process examined here deviates from the traditional English Auction in as much as the value of the auctioned object is no longer time invariant.

15. We assume that the first bids of the HB and the WK arise from their independent distributions of the valuation of the target. The second bid of the HB, if arising prior to the WK bid, uses up most of the synergy anticipated by the HB, and provides imperfect information to the WK about the value of the target. This information warns the WK that the cost of a successful bid will be high, and helps in reducing the "winner's curse".

16. An exception is the study by Lambert & Larcker (1984) which shows that the introduction of a stock option plan leads to a decrease in variance for the firm.

17. Smiley and Stewart (1985) mention that WK firms have high leverage. We feel that such a situation will arise only if the holding of stock options of WK managers is high enough in absolute and relative terms to predominate their urge for "free" cash flow, which can enable them to enhance their cash compensation by increasing size.

CHAPTER 4

DATA AND METHODOLOGY

4.1 Data Identification

4.1.1 Sample of Contesting Firms

Our definition of a WK requires the firm to fulfil both of the following criteria:

1. It must make a subsequent bid to acquire the target, or to acquire a substantial non-majority interest in the target, after (a) one or more hostile bids; or (b) initiation of a proxy contest; or (c) acquisition of an equity position with hostile intent.

2. There must be evidence of "collaboration" between the WK and the target prior to the WK bid, in published reports (by explicit reference in the responsible financial press to the bidder as WK), or other indications signifying collaboration.

Jensen and Ruback (1983) note that takeover activity may take one of three forms: tender offer, merger, or proxy contest.[1] The term WK is loosely used, in the context of their participation in such activity, to incorporate a number of different situations. For example, a target firm may always arrange to be preemptively taken another firm (termed as a WK by Mergerstat Review) in a friendly merger when the target firm is anticipating a hostile bid but none has materialized. In such situations, there is no bidding contest and the valuation consequences are likely to be

similar to a friendly merger between the two firms. In
addition, there can be a non-collaborative subsequent bidder
in multiple bidding situations for the target where the bids
from this bidder cannot be identified as friendly.[2] Our
definition of the WK *excludes* these occurrences, and
incorporates only those firms which enter the bidding
process with a *friendly* bid *after* the target's anti-hostile
takeover defense is triggered (so far as its market
informational characteristics are concerned) with the
commencement of a takeover bid or proxy fight independent of
the WK bid. In our study, WKs can exist only in the context
of hostile takeover bids by non-WK firms or proxy contests
launched by hostile dissidents or raiders or large open
market purchases with hostile intent.[3] Also, with only
public firms being amenable to event analyses, subsequent
friendly bidders which are *private parties* are *excluded* from
the study.

The corresponding HBs in the three party contests act,
in some ways, like a control group with which WK reaction
can be compared. For the proxy contests, the date of
announcement of the proxy fight is treated as the date of
the "bid", as this is the event date where most of the
activity is observed as far as shareholders are concerned
(Dodd and Warner, 1983). For large open market purchases,
the date when the equity position is acquired with
expression of hostile intent, as reported in the <u>Wall Street</u>

74

Journal, is treated as the date of the "bid". The study on bidding behavior is conducted using a sample of WK firms quoted in New York Stock Exchange (NYSE) and American Stock Exchange (AMEX) which fulfil the criteria listed in the previous paragraph during the 10-year period 1978-1987. The sample is primarily obtained from Mergerstat Review published by W.T. Grimm & Co., supplemented by a search from the Dow Jones News Retrieval Service (DJNS).[4]

4.1.2 Compensation and Financial Data

For conducting the second part of the study relating to manager motivation, the following data are obtained by scrutinizing the relevant annual proxy statement immediately preceding the control contest, filed by each firm with the Securities and Exchange Commission (SEC):

- the extent of direct and beneficial ownership of common stock by the principal executive officers (managers) on a date immediately preceding the contest,

- the annual managerial compensation for the WK and HB firms for the financial year immediately preceding the contest, and

- the extent of outstanding (unexercised and unexpired) executive stock options held by managers (and their weighted average exercise price) on a date immediately preceding the contest.

The information relating to direct and beneficial ownership of common stock by the principal executive

officers is available for all the firms, and sometimes indicates the inclusion of stock options exercisable within 60 days. The number of such officers is disclosed along with the aggregate direct and beneficial ownership; yet no criteria for the selection of officers eligible to appear in the aggregation are ever listed in the proxy statements.

In the earlier years of the sample time-period, the annual compensation for a predetermined and stated number of principal executive officers is listed under the following headings:

A.   Cash and cash-equivalent remuneration

(i)   Salaries, Director's Fees, Commissions and Bonuses, and

(ii) Securities or property, insurance benefits or reimbursement, personal benefits.

B.   Aggregate of contingent forms of remuneration (including stock options, not separately indicated).

In subsequent time periods, most firms report only part A above, separately or in the aggregate, as executive compensation during the time period. For these firms, the aggregate contingent compensation is not directly listed in the proxy statements either as part of total executive compensation or elsewhere in the proxy statement. For purposes of equivalence across time periods, and also because our hypotheses focus on cash and cash equivalent forms of compensation, we *exclude* aggregate deferred

compensation in our study even when they are available for some of the firms in the sample.[5] Once again, the data is available for an aggregate number of principal executive officers, without any listing of the criteria for selection.

The proxy statements for the firms in the sample always provide data regarding the executive stock options *granted* during the year and its weighted average exercise price. However, the variable of interest in the study is the value of the *outstanding* (unexercised and unexpired) stock options held by principal executive officers at any point of time, and their weighted average exercise price. The mode of description of executive stock options in the proxy statements also changes radically over time, and more so than the description of executive remuneration.

Most existing studies which need to assign a dollar value to executive stock options use them for computing total compensation of managers. Since such compensation is correctly interpreted as the annual income of the managers, stock options are treated as deferred income. In doing so, the data of interest to researchers is the amount of stock options *granted* during the year for which the compensation is being measured, and its weighted average exercise price. In our study, however (also Agrawal and Mandelker; 1987), the variable of interest is the amount of unexercised stock options *outstanding* (including, and usually greater than the stock options granted during the year for which compensation

is being measured) and its weighted average exercise price, because managerial actions will be more likely to be motivated by this variable, rather than a variable representing merely the stock options granted during the year. We thus need the closing inventory of stock options and weighted average exercise price of these options.[6]

The data on executive stock options in the proxy statements has wide variations, and there appears to be a time dimension to such reporting. The different types of reporting, and the approximations being used by us for obtaining the closing inventory of options and their weighted average exercise price from each of these reporting variations are detailed in section 4.3.1 below.

For converting managerial holdings of common stock and stock options to an ex-ante potential income flow, the expected rate of return E(R) on common stock is calculated using the Capital Asset Pricing Model. Beta for each firm is obtained from the market model estimates as explained in section 4.2 below. The average market premium is considered to be 8.6%,[7] and the risk-free rate is proxied by the average annual rate on 3 month Treasury Bills in the year preceding the contest, as reported in the Annual Statistical Digest of the Board of Governors of the Federal Reserve.

The financial data of relevance for the sample firms is obtained from two sources. The aggregate outstanding debt is obtained from the relevant Moody's Manuals (Industrial,

Transportation, Utilities, or Banking and Finance as the case may be). The aggregate value of common stock is extracted from the master tapes of the Center for Research in Security Prices (CRSP).

4.2 Methodology - Bidding Behavior

The event time methodology is employed to examine the valuation consequences for each of the participants in multi-party contests involving WKs. The specific attributes of the methodology employed are those outlined by Hite and Owers (1983). The methodology accommodates the need to examine both fixed and variable length time intervals.

For each security j, the market model is used to calculate an abnormal return (AR) for event day t as follows:

$$AR_{jt} = [R_{jt} - (a_j + b_j R_{Mt})] \qquad (3)$$

where R_{jt} is the rate of return on security j for event day t, and R_{Mt} is the rate of return on the Center for Research in Security Prices (CRSP) value-weighted index on event day t. The coefficients a_j and b_j are the ordinary least squares estimates of the intercept and slope, respectively, of the market model regression, which is run over an estimation period from t=-200 to t=-51, relative to the initial event date t=0. The initial event date (t=0) is the first date on which the relevant event is mentioned in the

Wall Street Journal - event dates are obtained from the *Wall Street Journal Index*. Abnormal returns are calculated for each security over the interval $-50, \ldots, L_j$, where L_j is the number of trading days between the initial event date and the final event date for the firm j. The cumulative abnormal return (CAR) from event day T_{1j} to event day T_{2j} is defined as

$$CAR_j = \sum_{t=T_{1j}}^{T_{2j}} AR_j \qquad (4)$$

We cumulate over various intervals, some of which are of common length across securities (e.g., $t = -50, \ldots, 0$) and some of which vary across securities (e.g., $t = -50, \ldots, L_j$). For a sample of N securities, the mean CAR is defined as

$$\overline{CAR} = \sum_{j=1}^{N} CAR_j \qquad (5)$$

The expected value of $\overline{CAR}$ is zero in the absence of abnormal performance.

The test statistic described by Dodd and Warner (1983) is the mean standardized cumulative abnormal return. To compute this statistic, the abnormal return AR_{jt} is standardized by its estimated standard deviation s_{jt},[8] i.e.,

$$SAR_{jt} = (AR_{jt}/s_{jt}) \qquad (6)$$

The standardized cumulative abnormal return $\overline{SCAR_j}$ over the interval $t = T_{1j}, \ldots, T_{2j}$ is

$$\overline{SCAR_j} = \sum_{t=T_{1j}}^{T_{2j}} SAR_{jt} / \sqrt{(T_{2j} - T_{1j} + 1)} \qquad (7)$$

The test statistic for a sample of N securities is

$$Z = \sum_{j=1}^{N} \overline{SCAR_j} / \sqrt{N} \qquad (8)$$

Each SAR_{jt} is assumed to be distributed unit normal in the absence of abnormal performance. Under this assumption, Z is also unit normal.

It can be conjectured that few firms adopt strategies to be a WK, as there are apparently no benefits to be derived by the shareholders from such a course of proposed action. This, coupled with the unanticipated, subsequent nature of the bid,[9] makes it unlikely that the difficulties of interpreting abnormal bidder CARs around the event date will hold for WKs.

Further, we feel that our hypothesis will be strengthened if the loss suffered by the WK around its bid is sustained over the entire period for which the WK participates in the contest. While we postulate no recovery at any stage, this conjecture has to be tested through the statistical significance of cumulative abnormal returns over

81

time periods ending on the date of withdrawal of the HB, and the date of completion of the contest.

Another significant observation regarding the role of the time intervals in hypothesis testing is in order. For the WKs under the HHW market process, it is of interest to look at the effects of the second HB bid, and the time interval between the first WK bid and its immediately *preceding* HB bid, for comparison with the standard bidding process. On the other hand, the differential impact of WKs under the ASB market process will appear well inside the auction process, indicated in time intervals *following* the first WK bid.[10]

The simple linear model specified in section 3.3.2 of chapter 3 is estimated on the computer software package SHAZAM using ordinary least squares regression. The model is checked for heteroskedasticity using the Goldfeld-Quandt test.[11] As per the requirements of the test, the observations are ordered according to the magnitude of the explanatory variable (number of days between the WK bid and the preceding HB bid). One-sixth of the observations at the center of the range are excluded, leaving two nearly equal-sized groups of observations, one group corresponding to low values of the chosen independent variable T and the other group corresponding to high values. Separate regressions are run for the two groups of observations. The ratio of the sum of squared residuals for the two regressions is an

F-statistic, which is approximately unity if the error terms are homoskedastic.

4.3 Methodology - Managerial Motivation

The incentive and monitoring variables as defined in chapter 3 need to be structured for further analysis. The rate of return $E(R_j)$ for converting the managerial holdings of stock and stock options to expected income is calculated from the following equation:[12]

$$E(R_j) = R_f + (0.0860 * \beta_j) \qquad (9)$$

where $E(R_j)$ = expected return on 'j'th stock.

R_f = average annual 3 month Treasury bill rate.

β_j = Beta for stock 'j'.

0.0860 represents the average market premium for stock returns over the risk free rate R_f.

Now, for the 'j'th firm, let

H_{mj} = number of shares of common stock of the 'j'th firm held by managers.

H_{Tj} = total number of shares of common stock of the 'j'th firm.

S_j = price of each share of common stock of the 'j'th firm.

V_j = value of each stock option of the 'j'th firm.

C_j = annual cash and cash-equivalent compensation of the managers of the 'j'th firm.

D_j = book value of outstanding debt of the 'j'th firm.

Next, *for the managers*, let us define the variables

COM, OP and MGR (as in Chapter 3, section 4), as under:

$$COM = \frac{\text{Annual expected income from stock holding}}{\text{Annual cash and cash-equivalent remuneration}}$$

$$OP = \frac{\text{Annual expected income from options holdings}}{\text{Annual cash and cash-equivalent remuneration}}$$

Further, *for the firm*, we define the variable DEQ as:

$$DEQ = \frac{\text{Book value of outstanding debt}}{\text{Market value of common stock}}$$

We also define the variable MGR as:

$$MGR = \frac{\text{Total common stock held by managers}}{\text{Total common stock of firm}}$$

For the 'j'th firm, the above variables can then be

mathematically expressed as:

$$COM_j = \frac{(H_{mj} * S_j) * E(R_j)}{C_j} \qquad (10)$$

$$OP_j = \frac{V_j * E(R_j)^{13}}{C_j} \qquad (11)$$

84

$$DEQ_j = \frac{D_j}{(H_{Tj} * S_j)} \tag{12}$$

$$MGR_j = (H_{mj} / H_{Tj}) \tag{13}$$

While all the other variables are readily available, a suitable methodology is required for obtaining the value of V_j.

4.3.1 Valuation of Executive Stock Options

If the number of stock options outstanding is denoted by 'n', the stock price is denoted by SP and the weighted average exercise price by XP, the proxy statements provided four different types of data relating to executive stock options. These are listed below, along with the approach adopted to obtain consistent data on the number of stock options outstanding and their weighted average exercise price for valuation purposes.

Type I: The number of stock options outstanding 'n' and their weighted average exercise price XP is directly available from the proxy statements.

Type II: The number of stock options outstanding 'n' is directly available from the proxy statements along with the unrealized potential value UPV on the relevant date. In this situation, it is possible to calculate the XP from the following equation:

$$UPV = [(SP - XP) * n] \tag{14}$$

The equation, to yield correct results, uses the restrictive assumption that SP > XP for all outstanding options 'n' on the relevant date, since only these options will have unrealized potential value.

Type III: The available data consists of:

(a)   The number of options granted during a period 'N_1' and its weighted average exercise price XP_1.

(b)   The number of options exercised during the same period 'N_2' and the net value realized R.

In this situation, one has to examine proxy statements for the prior years till one finds a statement where the executive stock options are at least expressed as in Type II above, to get an opening inventory 'N' of stock options with a weighted average exercise price EP. In this case, the end of period inventory 'n' and the weighted average exercise price XP are given by:

$$n = (N + N_1 - N_2) \qquad (15)$$

$$XP = \frac{[(N * EP) + (N_1 * XP_1)]}{(N + N_1)} \qquad (16)$$

This process is repeated recursively for each period till one reaches a date immediately

prior to the contest. While this method seems to be exact, there are two problems which result in imprecision in measurement:

(i) The time periods for which the data are reported in the annual proxy statements are not usually back to back, and there can be overlaps of up to two months in the reporting of this data in the proxy statements for any two successive years. For the overlap not to affect 'n', we need to assume that the number of options granted during each period of overlap is exactly equal to the number of prior options exercised during that period. XP will always be somewhat affected due to double counting of the options granted during each period of overlap.

(ii) The annual proxy statements sometimes provide executive stock option data for five years instead of one year. In the version of reporting being presently described, such five year data reduce the inaccuracies due to reduction in the number of periods of overlap.

Type IV: The available data consists of:

(a) The number of options granted during a period 'N_1' and its weighted average exercise price XP_1.

(b) The net value realized R during the same period. Here, the procedure adopted in Type III above

can be followed in respect of XP. However, 'n'
cannot be calculated as 'N_2' is not available.
N_2 has to be calculated from the following
construct:

$$R = [(SP_1 - XP_2) *N_2] \qquad (17)$$

$$or \quad N_2 = [R/(SP_1 - XP_2)] \qquad (18)$$

Here, XP_2 is the weighted average exercise price
at the end of the preceding period (known to us),
and SP_1 is the price at which the option is
exercised, which will likely be the relative
stock price on the date of exercise. Since data
on SP_1 for options exercised is not available, it
has to be proxied, for the entire period for
which R is known, by the average month-end price
of the relative stock for the period. While this
method enables us to calculate both 'n' and XP,
the inaccuracies increase when data on stock
options are available on a five year consolidated
basis (in contrast to Type III above), since SP_1
is then calculated on a five year month-end
average.

The traditional method of valuing executive stock
options, used by Lewellen, Loderer and Martin (1987), is to
value them in the year in which they are granted, at their

end-of-year exercise value, which is the difference between year-end market price and exercise price. The estimate is then revised every year, as the exercise value changes, up to the observed exercise date. Smith and Zimmerman (1976) feel that this method grossly underestimates the option value as it does not consider the discounted exercise price.

Noreen and Wolfson (1981) derive a set of valuation formulas for warrants. For some of these warrants which have characteristics similar to executive stock options, the value of the warrant is given by the Black-Scholes valuation formula which allows for continuously paid dividends. This expression has been used for valuing stock options by Murphy (1985), with some simplifying assumptions as under:

(i) Executive stock options are valued when they are granted.

(ii) Options are granted at an exercise price equal to the market price on the date of the grant.

In actual practice, the exercise price is very close to the market price for the stock on the date of the grant.

There are a number of market imperfections affecting the valuation of executive stock options. These are:

(i) The options are not transferable.

(ii) The executive loses the right to exercise the options if he/she does not remain with the firm long enough to satisfy stated criteria.

(iii) Construction of appropriate riskless hedges is impeded

   by restrictions against insider trading.

These restrictions tend to reduce the value of the option, since they increase the probability that the option will not eventually be exercised. The Black-Scholes formula will thus likely overestimate the true value of the option, and provide an upper bound.

   Smith and Zimmerman (1976) propose a method of valuing executive stock options which does not make any assumptions regarding the future distribution of stock prices. Their formulation, though not providing a precise value for the option, does give a lower bound on the option's value. It is based on the inference that the non-zero value of the option (at the time it is granted) is not less than the difference between the current stock price and the discounted future cash flows from exercising the option. The future cash flows consist of the cost of exercising X, and the foregone dividends D, adjusted for foregone interest on foregone dividends. The method has been used by Agrawal and Mandelker (1987), and is also used by us[14] in the analysis with the assumptions stated thereagainst. If the value of each executive stock option be O, then

   $O \geq Max [0, S - (X + D)B]$ (19)

where

$$D = \sum_{t=1}^{T} [d_t * (1 + r)^{T-t}] \qquad\qquad (20)$$

$$B = [1 / (1 + r)^T] \qquad\qquad (21)$$

T = assumed to be 5 years for all options outstanding.

d_t = dividend per share declared in year t.[15]

r = risk free rate, proxied by annual 3 month Treasury Bill rate.

X = weighted average exercise price of options outstanding.

S = stock price immediately prior to the contest on the date for which the option data is provided in the proxy statement.

B = price of riskless discounted bond.

The use of the lower bound will obviously undervalue the stock options. However, because of all the market imperfections for executive stock options cited earlier, the true value of the option will be less than its estimated value. Smith and Zimmerman thus feel that the true value will thus be closer to the lower bound derived from their valuation expression. The method (as also that of Murphy) has an upward bias as it does not adjust for dilution occurring from exercise of the options. However, this is expected to be very small, since outstanding options rarely exceed more than one or two percent of the outstanding common stock, and many of these options expire unexercised.

If the number of options outstanding is given by 'n', then the value V of the outstanding option holding for the principal executive officers of a firm is given by:

$$V = (n * O) \tag{22}$$

4.3.2 Statistical Testing of Hypotheses

For each of the variables COM, OP, DEQ, as defined above, arithmetic means and variances about the mean are separately calculated for the different groups of interest. Difference between the means of the WK and the HB, the HHW WK and the non-HHW WK, the HHW WK and the HB, the non-HHW WK and the HB, and the ASB WK and the non-ASB WK, is tested for statistical significance by a t-test, under the assumption that the variables in both the groups are normally distributed, and the variable in both the groups is characterized by the same unknown population variance σ^2. In such a case, the test statistic T is given by[16]

$$T = \frac{(\mu_1 - \mu_2)}{[s\sqrt{(1/n_1)+(1+n_2)}]} \tag{23}$$

where

$$s^2 = \frac{[(n_1-1)s_1^2 + (n_2-1)s_2^2]}{(n_1 + n_2 - 2)} \tag{24}$$

and

μ_1 = mean of sample 1

μ_2 = mean of sample 2

n_1 = size of sample 1

n_2 = size of sample 2

s_1^2 = unbiased estimator of σ^2 from sample 1

s_2^2 = unbiased estimator of σ^2 from sample 2

The test statistic T then follows a studentized t distribution with (n_1+n_2-2) degrees of freedom.

To account for the existence of outliers, if any, in the data, which will likely vitiate the assumption of normality required for the t-test, we also conduct the non-parametric Wilcoxon Test[17] on the same data sets to test for the difference of medians between the two groups. To perform the test, the observations in both the groups are put together and ranked in order of increasing size. The test statistic W is the sum of ranks of the first group. If n_1 > 10 or n_2 > 10, the sampling distribution of W rapidly approaches that of a normal distribution with mean μ_w and variance σ^2_w, where μ_w and σ^2_w are given by

$$\mu_w = \frac{[n_1 * (n_2 + 1)]}{2} \qquad (25)$$

$$\sigma^2_w = \frac{[n_1 * n_2 * (n_1 + n_2 + 1)]}{12} \qquad (26)$$

The significance of an observed value W can then be determined by calculating the value of Z, as follows, which is distributed with zero mean and unit variance:

93

$$Z = \frac{(W \pm .5 - \mu_W)}{\sigma_W} \qquad\qquad (27)$$

In the next phase, we seek to establish that

(a)   the 2 day CAR for the bidders can be explained by the

explanatory variables relating to incentive and

monitoring defined earlier, *and*

(b)   the model is structurally different for the HB, the HHW

WK and the non-HHW WK.

As a first step, we scrutinize the independent

variables for multicollinearity by looking at the

correlation matrix and the auxiliary regressions involving

each of the explanatory variables as the dependent variable

and the other two variables as independent variables. Next,

we conduct a Chow test[18] on the model to look for

structural changes between the three groups in explaining

the dependent variable. The test is conducted by first

considering the model as unrestricted where the coefficients

of the explanatory variables can take different values for

the HB, the HHW WK and the non-HHW WK. In effect, we have

three regression equations in the same variables with

different values for the estimators of each of the

coefficients in the three groups. The sum of the squared

residuals from the mean of each of these regression

equations, when added up, provides the residual sum of

squares of the unrestricted model, RSS_U. We then consider

the model as a restricted model by assuming that there is no difference between the three groups. This implies that the coefficients of the explanatory variables are identical across the three groups, and the corresponding regression can then be run on stacked data from all the three groups, treating the data as if they originate from the same population. The sum of the squared residuals from the mean of this regression equation yields the residual sum of squares of the restricted model, RSS_R. The appropriate test statistic T to test the null hypothesis of no structural change is then given by:

$$T = \frac{[(RSS_R - RSS_U)/2K]}{[RSS_U/(n_1+n_2+n_3-3K)]} \qquad (28)$$

where   K = number of regressors (including the intercept)

n_1 = number of observations for HHW WK

n_2 = number of observations for non-HHW WK

n_3 = number of observations for HB.

The test statistic follows the F distribution with 2K numerator degrees of freedom and $(n_1+n_2+n_3-3K)$ denominator degrees of freedom.

The final model based on the results of the Chow Test is then tested for heteroskedasticity using White's test.[19] The test examines whether the error variance is affected by

95

any of the explanatory variables, their squares or their products. The test statistic is computed as the sample size N times the R^2 from a regression of the squares of the residuals of the original regression equation as the dependent variable and the explanatory variables of the original regression, their squares and their products as the independent variables. The test statistic is asymptotically distributed as a chi-square with degrees of freedom equal to the number of regressors (not counting the constant) in the regression used to obtain the statistic.

The next chapter details the results obtained through an analysis of the data as per the methodology elaborated above, and the extent of supporting evidence for the various hypotheses set out in Chapter 3.

ENDNOTES

1. Tender offers are directly made to the target firm's shareholders who decide individually whether or not to tender their shares for sale to the bidding firm. Mergers are negotiated directly with the target's managers and approved by its board before going to a vote of its shareholders for approval. Proxy contests occur when an insurgent group attempts to gain controlling seats on the board of directors.

2. *All* such subsequent bidders who are successful in acquiring the target are termed as WKs by Bradley, Desai and Kim (1988).

3. Mitchell and Lehn (1990) use a similar collection of firms in their sample selection of bidders.

4. DJNS provides information from June 1979 onwards. We conduct the search using key expressions relating to White Knight transactions.

5. Executive stock options, which are a part of deferred remuneration realizable in the near term horizon, have been considered as a separate variable.

6. In an article on measuring executive compensation, Antle and Smith (1985) point out the difficulties of obtaining the closing inventory of executive stock options from company furnished public data, and recommend the need for the use of approximations in this regard - see Appendix B of their paper.

7. In Corporate Finance, Ross And Westerfield (1987) calculate the average risk premium to be 8.6% for all stocks for the period 1926-1986 - p 128.

8. The value of s_{jt}^2 is given by

$$s_{jt}^2 = s_j^2 \left(1 + \frac{1}{D_j} + (R_{Mt} - \bar{R}_M)^2 / \sum_{\tau=1}^{D_j} (R_{M\tau} - \bar{R}_M)^2\right)$$

where

s_j^2 = residual variance for security j from the market model regression,

D_j = number of observations during the estimation period,

R_{Mt} = rate of return on the market index for day t of

the event period,
R_M = mean rate of return on the market index during the estimation period, *and*
$R_{M\tau}$ = rate of return on the market for day τ of the estimation period.

9. Roll (1986) mentions that the market may not react to the immediate announcement of a bid since the bid may be anticipated, and may convey strategic information about the bidder other than that it is seeking a combination with a particular target.

10. The measurement over extended intervals implicit in the formulation raises significant empirical issues. The larger the time intervals over which abnormal CARs are calculated, the farther one moves from the comparison period, and there can be problems with the stability of the beta used for predicting returns on which CARs are based. In this situation, the likelihood of extraneous firm-specific events creeping in is greater. While these difficulties are noteworthy, we believe that the robustness of the method, the economic magnitudes observed, and the absence of contradictory inferences will evidence the appropriateness of our use of the procedures.

11. For a description of the Goldfeld-Quandt test, see Kmenta, <u>Principles of Econometrics</u>, 2nd Ed., 292-294.

12. The equation is based on the Capital Asset Pricing Model, according to which

$$E(R_j) = R_f + [E(R_M) - R_f] * \beta_j$$

A value of 0.0860 has been assigned to $[E(R_M) - R_f]$ based on historical data from 1926-1986.

13. For calculating the expected income from executive stock options, the holding of options should properly be multiplied by the rate of return on the option, which is related to the rate of return on the underlying stock through the expression:

$$[E(R_{cj}) - R_{fj}] = \Omega * [E(R_j) - R_f], \text{ where}$$

Ω $= (\partial C_j / C_j) \div (\partial S_j / S_j)$
$E(R_j)$ = expected return on common stock.
$E(R_{cj})$ = expected return on call option on the common stock.
R_f = risk-free rate.
C_j = value of call option on stock.
S_j = value of stock.

Omega is defined as the option's elasticity. To
facilitate the analysis, we assume that all the
executive stock options have unit elasticity, resulting
in the rate of return on the option being equal to the
rate of return on the stock. This assumption is not
unreasonable if we consider that the options are
usually not deep out-of-the-money (in tune with their
incentive feature) and have a relatively long time to
expiration - see Cox and Rubinstein, <u>Options Markets</u>,
pp. 185-193 and pp. 228-229.

14. The method of Murphy (1985) and that of Smith and
    Zimmerman (1976), are both formulated to value
    executive stock options *granted*. We look upon all
    outstanding executive stock options on a particular
    date with a given weighted average exercise price as if
    the options were granted on that date with an exercise
    price equal to the given weighted average exercise
    price. This violates the assumption of Murphy (1985)
    that options are granted at an exercise price equal to
    the market price on the date of the grant. Accordingly,
    we have adopted the method of Smith and Zimmerman
    (1976) for valuing executive stock options.

15. We assume constant payout over the life of the option.
    The variable 'd' is assumed to be the dividend paid in
    the year prior to the announcement of the event.

16. For a description of the t-test, see Kmenta, <u>Principles
    of Econometrics</u>, 2nd ed., 145.

17. The Wilcoxon test is a nonparametric test whose
    power-efficiency is close to 95% of the t-test even for
    moderate-sized samples. For a detailed description of
    the test, see Siegel and Castellan, <u>Nonparametric
    Statistics for the Behavioral Sciences</u>, 2nd Ed.,
    128-137.

18. For details on the construction of the Chow Test in
    different circumstances, and different ways of setting
    up the test, see Kmenta, <u>Principles of Econometrics</u>,
    2nd Ed., 420-422; Kennedy, <u>A Guide to Econometrics</u>, 2nd
    Ed., 87-88 and 186.

19. For a detailed description of White's test and the
    related Breusch-Pagan test, see Kmenta, <u>Principles
    of Econometrics</u>, 2nd Ed., 294-296, and Kennedy, <u>A Guide
    to Econometrics</u>, 2nd Ed., 108. The Goldfeld-Quandt
    test was not used due to difficulties in identifying
    the explanatory variable with which the error term is
    correlated in the multiple regression context.

CHAPTER 5

EMPIRICAL RESULTS

5.1 Results Relating to Bidding Behavior

5.1.1 Review of Bidding Data

Mergerstat Review, which tracks only successful WKs,

yields 67 WKs for the period 1978-1987. These include

preemptive friendly offers when target firms are expecting

hostile bids,[1] subsequent non-collaborative bids by "third

parties" in multiple bidding situations, and subsequent

collaborative (WK) bids by private firms. Dow Jones News

Retrieval Service yields 266 cases, of which there are 33

cases definitionally equivalent and non-overlapping to the

cases from Mergerstat Review, except that they also

incorporate unsuccessful cases. Thus, 100 control contests

are identified from primary sources and subjected to the

final definitional and data criteria for sample inclusion.

After obtaining the short-list of 100 cases, the Wall

Street Journal Index for the relevant years, and the actual

Wall Street Journal articles are scrutinized to select the

cases which conform to the definition of WKs stated at the

beginning of Chapter 4. The manner of selection is detailed

in Table 1 (on the next page). Exclusion of cases having

confounding events lead to the final sample of 62 WK

contests of which 57 involve exchange-listed firms.[2] Three

firms have each been WKs on two separate occasions. They

are considered as six different cases, as there is no

Table 1.

Sample Selection from Control Contests
Involving "White Knights"

Description of column headings:

EXCH :Subsequent collaborative bidders - exchange listed.

OTC   :Subsequent collaborative bidders - "over the counter".

PVT   :Subsequent collaborative bidders - private firms.

PRE   :Preemptive friendly offers when target is expecting a
       hostile bid - private firms indicated in brackets.

NOCOL:Subsequent non-collaborative bidders in multiple
       bidding situations.

CONF : Confounding events.

NOINF:No information in Wall Street Journal Index.

YEAR	EXCH	OTC	PVT	PRE	NOCOL	CONF	NOINF	TOTAL
1978	1	1	-	2(1)	1	-	1	6
1979	8	-	-	-	2	-	-	10
1980	9	-	-	2(1)	1	1	-	13
1981	10	-	1	-	-	2	-	13
1982	4	-	1	-	-	-	-	5
1983	5	-	1	-	1	-	-	7
1984	4	1	2	-	-	-	-	7
1985	9	1	2	1(1)	-	1	-	14
1986	5	1	7	3(2)	-	1	1	18
1987	2	1	4	-	-	-	-	7
	--	--	--	--	--	--	--	---
	57	5	18	8(5)	5	5	2	100
	--	--	--	--	--	--	--	---

overlap in the time span of the contests (from the date of the first HB bid to the date of completion of the WK bid) for the WKs involved.[3] For each of the 62 public WKs in the sample, the target is a public company. Ten targets are OTC firms and one is a Canadian firm.

There are 62 HB cases corresponding to the WK sample, of which 57 are bids, four are proxy contests and three are open market purchases with hostile intent. 46 HBs in the sample contests are public companies, of which four are OTC firms. Over the entire ten year period of study, two of the HBs appear subsequently in other contests as a WK. None of the WKs appear as HBs in subsequent contests involving WKs.

In terms of the bidding variations in these contests, there are 16 HHW WKs and 9 ASB WKs. In one instance, considered as part of the HHW process, the WK bid follows three consecutive bids by the HB (the bidding sequence being HHHW). Only one HHW WK overlaps with an ASB WK, i.e. the bidding sequence is HHWHW. For 7 ASB WKs, the sequential bidding (bidding sequence HW) occurs twice. In two other cases, it is repeated three times and four times respectively.

5.1.2 Event Time Description

The following event dates are identified when examining the results of control contests involving WKs:

HOSTILE BIDS

D_1 Date of first bid by HB.

D_1' Date of subsequent bid by the HB (in the HHW market process) following its own first bid D_1.

D_1'' Date of each subsequent bid by the HB following the WK bid - occurs in the ASB market process.

WHITE KNIGHT BIDS

D_2 Date of first bid by WK.

D_2' Date of each subsequent bid by the WK following the HB bid - occurs in the ASB market process.

D_2'' Date of the last bid by the WK prior to the withdrawal of HB - occurs in the ASB market process.

EVENT COMPLETION

D_3 Date of withdrawal of HB.

D_4 Date of completion of WK transaction.[4]

In our empirical analysis, we focus our attention on two types of event windows, the fixed interval and the variable interval. In the tables describing the results, fixed intervals are denoted by (D_p-q, D_p), where 'p' is a number representing the appropriate event date as per the classification above, and 'q' represents the fixed interval. Variable intervals are represented by (D_p+1, D_r), where 'p'

103

and 'r' are numbers representing the appropriate event dates bounding the contest-specific variable as per the classification above.

The variable intervals (and their mean values in trading days denoted by μ) between the defined event dates can be related to the market process as follows:

(D_1+1, D_2) The time taken by the WK to enter the contest, after its initiation ($\mu=27$). In the HHW environment, this interval needs to be further split into (D_1+1,D_1') and $(D_1'+1,D_2)$ to examine the differential impact of the second HB bid.

(D_2+1, D_3) The length of the auction process ($\mu=11$). In the ASB environment, the differentiated impact of subsequent bids by HB and WK can be examined by considering each ASB as a sequential collection of standard bidding situations and splitting the interval into (D_2+1,D_1''), $(D_1''+1,D_2')$ and $(D_2''+1,D_3)$.[5]

(D_1+1, D_3) The time spent by the HB in the contest ($\mu=38$).

(D_2+1, D_4) The time spent by the WK in the contest ($\mu=46$).

(D_1+1, D_4) The length of the contest ($\mu=73$).

The average interval lengths indicate that the auction process, from the moment it is triggered by the WK bid, to the withdrawal of the HB, takes considerably less time than the control contest as a whole, with half of the auctions lasting 4 days or less. This makes it realistic to apply the intuition of the English auction while interpreting results.[6]

However, in commenting upon the average lengths of intervals, we note that the averages are generally unrepresentative of typical control contest scenarios, due to large dispersions about the mean. For example, the length of the auction process ranges from 0 days (the HB withdraws on the same day that the WK makes its bid) to 81 days (an ASB market process). The total length of the control contest process ranges from 17 days to 242 days.

5.1.3 Control Features of HBs

The relative sizes of the two categories of bidders in the control contest are examined. This is motivated by the premise that any wide disparity in this regard will complicate drawing conclusions based on a comparison of the market response to bids for the WK and the HB. For example, if one of the categories is considerably smaller than the other, the differential impact of potential resource-based constraints on the respective bidding behavior cannot be ignored. As a proxy for size, we use the market value of common equity for the firm two days prior to their first

bid, i.e. on day D_1-2 and D_2-2 for HBs and WKs respectively. As shown subsequently, the WKs have significant negative CARs for the interval D_2-1 to D_2. The value of the WK on date D_2-2 can thus be said to have preceded the impact of the WK bid, since there is little evidence of earlier security price reactions.

Table 2 below shows the size distribution of WKs and HBs respectively based on identified value ranges. For each

Table 2.

Comparison of Size Profiles of "White Knights"
and Hostile Bidders

Value Range	"WHITE KNIGHTS" (N=57)			HOSTILE BIDDERS (N=42)		
	Propor-tion(%)	Mean CAR	negative CAR(%)	Propor-tion(%)	Mean CAR	negative CAR(%)
($/mil)						
< 500	32	- 2.1	67	40	- 0.7	59
500 to 1000	16	- 3.7	89	21	- 0.9	66
1000 to 5000	37	- 3.5	86	33	+ 1.5	55
> 5000	15	- 4.7[a]	77[a]	6	- 1.7	100

[a] The "white knights" in this value range include Dow
    Chemical Co., which is really one of the outliers with
    a strong dollar gain different from the pattern
    observed in other "white knights". As such, these
    numbers have a positive bias.

of the value ranges, the table also shows the distribution
of positive and negative CARs and the mean two day CAR
ending on the date of their first bid. Three distinct
conclusions can be drawn from this table.

(i)   The WKs are generally comparable in size to the HBs,
      although they tend to be slightly larger. As such, it
      is appropriate to compare the market response to the
      two categories of bidders to strengthen our
      interpretation of the event study results.

(ii) The average two day CARs for WKs ending with their
      first bid are notably negative. On the other hand, the
      average two day CARs for HBs ending with their bids are
      mixed, with the average two day CAR for a relatively
      large size category of HBs being positive. The profile
      for HBs is consistent with the inconclusive results
      obtained by researchers examining bidder returns in
      takeovers.

(iii) The average negative CAR for the WK portfolio tends to
      increase as firm size increases. This is consistent
      with the notion that a larger size can imply greater
      potential for agency conflict.

5.1.4 <u>Overall Results</u>

Table 3 (on next page) reports the abnormal return (AR)
and the CAR (beginning at D_2-10) for each of the 10 days in
the interval ending with D_2, and also the CAR for three
fixed time intervals relative to D_2. The results in panel A

107

Table 3.

Abnormal Return (AR) and Cumulative Abnormal Return (CAR)
for "White Knights" for the Event Period -9 Trading Days to
+10 Trading Days from its Bid Date
(N=57)

PANEL A:

AR   = daily average market-adjusted abnormal return.

CAR' = cumulative sum of the daily average abnormal return.

Date in event time	AR (%)	CAR' (%)	(t-statistic)
- 9	0.08	0.08	0.25
- 8	- 0.02	0.06	- 0.07
- 7	0.05	0.11	0.15
- 6	0.13	0.26	0.39
- 5	- 0.03	0.23	- 0.10
- 4	0.11	0.34	0.32
- 3	0.06	0.40	0.18
- 2	- 0.18	0.22	- 0.54
- 1	- 1.59	- 1.37	- 5.41**
0	- 1.72	- 3.09	- 5.97**

** α=0.01.

PANEL B.

CAR = mean cumulative abnormal return

Period in event time	CAR (%)	(Z-statistic)
- 1 to 0	- 3.31	- 11.75**
+ 1 to + 5	- 0.11	- 0.12
+ 1 to + 10	0.33	0.52

** α=0.01.

show that the excess returns are sharply negative at D_2-1 and D_2. Also, the t-statistic for D_2-1 and D_2 is significant even at $\alpha=0.01$, thereby rejecting the null hypothesis that the abnormal returns on the event date are zero. From panel B of the table, we observe that the Z-scores for the CARs for intervals (D_2+1, D_2+5) and (D_2+1, D_2+10) are insignificant. In panel A, the t-statistics for ARs prior to D_2-1 are also seen to be insignificant. From these results we can make three inferences.

(i)   There seems to be little leakage of information regarding the impending bid of the WK. There is a significant average CAR of -3.3% from D_2-1 to D_2 and no evidence of material reaction before, as against a significant average CAR of -2.6% between D_1 and D_2, as shown in Table 4 (on the next page).

(ii) There is no recovery of the losses immediately after the WK bid, with the average CAR being insignificant at +0.3% between D_2+1 and D_2+10. Since the average length of the auction is 11 days (median 4 days), this lends support to the notion that the negative reaction of the WK shareholders is unaffected by the outcome of the contest.

(iii) If the WK bid at D_2 is perceived as an antitakeover strategy by the WK, then the negative reaction of the market is quite consistent with market reaction to most other antitakeover strategies where stockholder

Table 4.

CARs for "White Knights" and Hostile Bidders;
Selected Intervals

Interval	"WHITE KNIGHTS" (N=57)		HOSTILE BIDDERS (N=42)	
	CAR(%)	% negative CAR	CAR(%)	% negative CAR
D_1-50, D_1	− 1.9	54.39	0.8	50.00
D_1-4, D_1	0.7	50.88	1.8[*]	47.50
D_1-1, D_1	− 0.2	52.63	0.1	60.00
D_2-1, D_2	− 3.3[**]	77.19	1.3[**]	42.86
D_1+1, D_2	− 2.6[**]	68.42	3.1[**]	47.50
D_2+1, D_3	− 1.1	48.98	− 2.1[*]	64.86
D_2+1, D_4	− 1.9	49.09	−[a]	−[a]
D_1+1, D_4	− 5.6[**]	61.40	−[a]	−[a]

[**] $\alpha=0.01$.

[*] $\alpha=0.10$.

[a]   For hostile bidders, the transaction is completed on
       D_3 when they (or the unsuccessful "white knights")
       withdraw from the contest.

approval is not required (Jarrell, Brickley and Netter,

1988).[7]

Further strong evidence of negative returns for the WK

is evident from the percentage of positive and negative

returns, for the intervals including D_2, as reported in Table 4 (on previous page). This reveals that over the interval (D_2-1, D_2), 77.2% of the average CARs among WK firms are negative. 43.9% of the average CARs are significantly negative at α=0.10 (22.81% at α=0.01). In contrast, only 22.8% of average CARs among firms are positive. 1.75% of these CARs are positive and significant at α=0.10 (0% at α=0.01).[8] It is noteworthy that of the 13 WK firms (22.8%) that show positive CARs, 7 WKs enter the bidding process after two bids by the HB (HHW), two are White Squires (see footnote 3 in Chapter 1) for whom the bids are perhaps more in the nature of an investment and there is no intention to acquire control, and two WKs (one overlapping with HHW) are unsuccessful HBs in *prior* contests involving other WKs. This last category is thus presumably firms with acquisition plans awaiting implementation. For the firms having negative CARs, there are no White Squires or WKs who are unsuccessful HBs in prior control contests involving WKs. This is consistent with the notion that the managers of the WK may not be acting in the best interests of the shareholders when making their bid for the target.

From the CARs for the variable length intervals, we further note that a significant negative CAR for the portfolio of all WKs occurs only in intervals including the 2 day window from D_2-1 to D_2. Also, intervals including (D_2-1, D_2) but longer than that two day window show

significant negative average CARs *larger* than that for the two day window, implying that there is no prior gain or subsequent recovery of the losses incurred from D_2-1 to D_2. The pattern is essentially the same for the subsample of successful WKs. In a statistical sense, we can thus conclude that overall, shareholders of WK firms do lose on announcement of the WK bid, which is not a loss of prior gains, and is not recovered up to the completion of the contest. These results enable us to focus primarily on the two day window from D_2-1 to D_2, to study differences in return vectors based on structural differences in the bidding process.

As far as the HBs are concerned, it is apparent from Table 2 (on page 106) that the negative CARs for HBs in most size intervals are smaller than the negative CARs for equivalent sized WKs. Also, for the control sample of HBs, the proportion of positive CARs for the two day interval prior to and including their first bid on D_1 (40%) is much larger than that in the sample of WKs for the two day interval prior to and including their first bid at D_2 (22%). The CAR profile for the overall control HB group during and after their bid is also reported in Table 4 (on page 110).[9]

Interestingly, Table 4 reveals a completely different pattern regarding the abnormal return structure for the HBs, when compared to the WK bidders. In contrast to the market reaction around the WK bid, there is no impact for the HB

bid in the interval (D_1-1, D_1), and a significant average

positive CAR of +1.8% from D_1-4 to D_1. There is a further

gain between D_1+1 and D_2, with a significant average

positive CAR of +3.1% during this period. The proportion of

average positive CARs is higher, and the difference between

percentage of positive and negative CARs is not as

pronounced as for WKs. The WK bid at D_2 causes a

significant positive reaction for HB stock values. From

auction theory, the higher WK bid signifies that the value

of the firm is at least as much as the HB bid for it (the

next highest bid). This information likely causes the

market to react positively. However, the situation changes

after the WK bid. The prior gains of the HBs seem to

dissipate, with a significant negative CAR of -2.1% between

D_2+1 and D_3. The return pattern of the HBs is similar to

that of bidders for whom hostile takeover bids failed, as

reported by Bradley, Desai and Kim (1983). As noted in

their work, gain to bidders from hostile bids, based on

synergistic possibilities, dissipated as it became clearer

that the targets may not be taken over.

Overall, nothing material happens regarding HB abnormal

returns over the period D_1 to D_3, and gradual gains up to

the WK bid are lost subsequently. The contrast between the

HB effects and the WK bid outcome (where losses up to D_2 are

sustained up to D_3), provides evidence of the differing

motivations of the HB and WK bidders in control contests.

5.1.5 Results for HHW WKs

The market responses to WK participation when the WK bids after two consecutive HB bids (HHW market process), are shown in Table 5 (on next page).[10] The complementary situation of market response during identical fixed and variable intervals for WKs who bid immediately after a HB bid (non-HHW WKs), is shown alongside the corresponding CARs for the HHW WKs. A scrutiny of the results over the relevant fixed and variable intervals indicates strong support for the "Correlated Values" Hypothesis. The HHW WKs suffer a much smaller negative reaction, in percentage terms, than their counterparts. Around the WK bid, the abnormal negative CAR for WKs in the HHW process is less than that for non-HHW WKs. Between D_1 and D_2, and also over the entire length of the contest, the non-HHW WKs have *significant* negative returns, whereas the CARs for the HHW WKs over these same intervals are not significantly different from zero. Also, for the two day interval around the WK bid, non-HHW WKs have a substantially larger number of negative abnormal returns (85.37%, with 51.22% being significant at $\alpha=0.10$) than the HHW WKs (56.25%,[11] with 25.00% being significant at $\alpha=0.10$). Finally, the two day *positive* CAR portfolio for WKs consists of 54% of the HHW WKs and 13% of the non-HHW WKs. The latter goes down to 7% if we exclude non-HHW WKs who are identifiably following an investment strategy.

Table 5.

CARs for the Set of "White Knights" Where its First Bid is
Preceded by Two Consecutive Hostile Bids (HHW Process); and
the Complementary Set of "White Knights" (NON-HHW Process);
Selected Intervals

"WHITE KNIGHTS"

Interval	HHW PROCESS (N=16)		NON-HHW PROCESS (N=41)	
	CAR(%)	% negative CAR	CAR(%)	% negative CAR
D_1-50, D_1	- 1.6	56.25	- 2.1	53.66
D_1-4, D_1	1.6	50.00	0.3	51.22
D_1-1, D_1	- 0.9	50.00	0.0	53.66
D_1'-4, D_1'	3.5[**]	21.25	-[a]	-[a]
D_1'-1, D_1'	2.6[**]	25.00	-[a]	-[a]
D_2-1, D_2	- 1.0[**]	56.25	- 4.1[**]	85.37
D_1+1, D_1'	1.4	43.75	-[a]	-[a]
D_1'+1, D_2	- 5.4[**]	68.75	-[a]	-[a]
D_1+1, D_2	- 4.0	68.75	- 2.0[**]	68.29
D_2+1, D_3	- 1.2	50.00	- 1.1	48.57
D_2+1, D_4	1.4	31.25	- 3.2	56.41
D_1+1, D_4	- 3.8	62.50	- 6.2[**]	60.98

[**] α=0.01.

[a]   The event date D_1' does not exist for non-HHW
processes.

The significantly positive reaction of the HHW WKs to the second bid of the HB, as seen from Table 5 (on previous page), is difficult to explain, unless the possibility of some leakage of information is admitted. Thus, in the HHW market process where the control contest is well under way with the first HB bid, the market may become aware of the identity of the WK firm as a potential bidder. The second bid of the HB will then signify (in the context of "correlated" values) a higher value for the target, as it will most likely be the second highest bid of the auction. This additional information about the value of the target, being made available to the WK through the second HB bid, can enable the WK to make a more "appropriate" bid if it chose to do so. We offer this as a possible explanation as to why the market reacts favorably regarding the WK stock price when the second HB bid is made, in contests subsequently identified to be HHW contests. The longer HHW process can also imply more information flow to the market. Since firms have resisted once, the market may expect a WK and have identified possible WK candidates. The entry of the WK can then be less of a surprise, and this additionally explains why there is less negative reaction over the two day window ending D_2 for HHW WKs, as compared to non-HHW WKs.

Table 6 below reports the results of the regression model specified in equation (1) in Chapter 3. The

F-statistic is significant at α=0.01. We are unable to reject homoscedasticity using the Goldfeld-Quandt test. The estimator of the coefficient of the dummy variable representing HHW market process is positive and significant, providing further support to the "Correlated Values"

Table 6.

Multiple Regression to Evaluate the Impact of the HHW Market Process and the Time Between the "White Knight" Bid and the *preceding* Hostile Bid on the Two Day CAR Ending on the Date of the "White Knight" Bid
(N=57)

Explanatory Variables:

D   = 1, if WK bid follows 2 HB bids (HHW process).
    = 0 otherwise (sequential bidding between HB and WK).

T   = time interval between WK bid and *prior* HB bid.

Dependent variable:

CAR = two day market adjusted mean cumulative abnormal return for the WK ending on the date of its first bid.

MODEL:

$$CAR = \alpha + \beta_1 * D + \beta_2 * T + \epsilon$$

VARIABLE	COEFFICIENT	VALUE	t-STATISTIC
CONSTANT	a	− 0.0519	− 6.15**
D	b_1	0.0335	2.99**
T	b_2	0.0005	1.85*

Adjusted R^2 = 0.14

$F_{(3,54)}$ = 17.69**

**   α=0.01.
*   α=0.10.

117

hypothesis. The negative and significant estimator of the intercept, larger than the positive estimator for the DUMMY coefficient, shows that the CAR is likely to be negative, and this will be reduced if the WK bid is under the HHW process. The estimator of the coefficient of the variable T is also positive and significant, indicating that better appraisal of the target reduces the probability of overpayment. For a sufficiently long time interval, the CAR may also be positive. Solving the equation yields a critical time interval of 36.8 days for the CAR to be zero for the WKs under the HHW process. For the WKs under the non-HHW process, this critical time interval goes up to 103.8 days. In the sample, the mean interval for the HHW WKs is calculated to be 17 days after the second HB bid. The same mean for non-HHW WKs is 24 days. The likelihood of a positive CAR is thus seen to be more in the case of WKs under the HHW process.

5.1.6 Results for ASB WKs

All WKs in the ASB market process are successful in acquiring the targets. The market reaction for these WKs during the relevant variable intervals, and corresponding results for the control sample of HBs, are presented in Table 7 next.

It is evident from the results reported in the table that for the ASB market process, the Repetition Hypothesis is strongly supported. Every subsequent bid of the WK is

Table 7.

CARs for the Set of "White Knights" and Hostile Bidders
Where the First "White Knight" Bid is Followed by One or
More Sequences of Hostile and "White Knight" Bidding (ASB
Process); and the Complementary Set of "White Knights" and
Hostile Bidders (NON-ASB Process); Selected Intervals

Interval	"WHITE KNIGHTS" (N=9[a])		HOSTILE BIDDERS (N=6[a])	
	CAR (%)	Percent negative CAR	CAR (%)	Percent negative CAR
ASB PROCESS:				
$D_2+1,\quad D_3$	-7.6^{**}	71.78	-1.1	50.00
$D_2+1,\quad D_1''$	-0.1	50.00	-1.1	62.50
$D_1''+1,\ D_2'$	-2.7^{**}	63.64	1.3	18.18
$D_2''+1,\ D_3$	-4.7^{**}	87.50	-2.0	85.71
NON-ASB PROCESS[b]:				
$D_2+1,\quad D_3$	0.4	42.50	-2.3^{*}	67.74

$**$ $\alpha=0.01.$

$*$ $\alpha=0.10.$

[a]   The existence of more than one follow up sequence of
       hostile and "white knight" bids in 2 ASB contests led
       respectively to a total of 12 observations in the
       analysis of "white knights" and 8 observations in the
       analysis of hostile bidders.

[b]   There are 48 "white knights" and 36 hostile bidders
       in this category.

met by strong disapproval from the market, indicated by the significant CAR of -2.7% for the WKs over the interval from subsequent HB bids to subsequent WK bids (i.e., $D_1''+1$ to D_2'). There is a further significant loss of 4.7% after the last WK bid, until the HB withdraws. These findings suggest that after the resolution of all uncertainty as to whether it will prevail, the market gives the WK a final penalty for its "victory" in the contest. In the interval (D_2+1, D_3), the significant negative CAR for the ASB WKs is -7.6%, which can be readily contrasted with the absence of any significant reaction during this interval for the non-ASB WKs [CAR = +0.4 (z=1.06 - not reported in the Table)]. In contrast, from the summary of the ASB market process for HBs in Table 7, we observe no significant reaction on the HB to any of the subsequent bids, whether made by the HB or by the WK.

The evidence cited above illustrates that grouping all subsequent bids in one category as multiple bidding situations may be misleading if there is no control for the characteristics of the firms making the bids. In the ASB market process, both the HB and the WK make subsequent bids. The subsequent bids have no significant impact on the HB, irrespective of which bidder makes the subsequent bid. However, the impact on the WK is determined by the firm making the subsequent bid. If it happens to be the WK, there is a strong negative reaction, as in the case of its

first bid. However, if the HB makes the subsequent bid, the WK remains essentially unaffected. This result further suggests that the motivations for the WK bid are likely to be different from the motivations for the HB bid.

5.2 <u>Results Relating to Managerial Motivation</u>

5.2.1 <u>Review of Observed Data</u>

In carrying out the analysis on managerial motivation, it is observed that proxy statements containing information on executive compensation and executive holdings of stock and stock options are not filed by firms incorporated in foreign countries whose stocks traded on the exchange through American Depository Receipts (ADRs). There are two such firms in the sample of WKs (neither is involved in a HHW or an ASB bidding process) and one such firm in the sample of HBs. These are excluded from our study. Two other firms in the sample of HBs incorporate as public companies for less than one year before they bid for the target in a hostile manner, and annual executive compensation data is accordingly not available. There are thus 55 WKs (of which 16 are HHW WKs) and 39 HBs remaining in the sample.

Table 8 (on next page) provides a distribution of the types of reporting of executive stock options in proxy statements by the different bidders. No systematic difference is observed in type of reporting between WKs and HBs. Additionally, the panel relating to time distribution

Table 8.

Types of Reporting of Executive Stock Options in Proxy Statements

DISTRIBUTION AMONG BIDDERS:

	"WHITE KNIGHTS" (N=55)	HOSTILE BIDDERS (N=39)	TOTAL (N=94)
TYPE I	20	15	35
TYPE II	14	11	25
TYPE III	7	5	12
TYPE IV	8	5	13
NO OPTIONS	6	3	9

TIME DISTRIBUTION:

	1978-80	1981-84	1985-87	TOTAL (N=94)
TYPE I	30	4	1	35
TYPE II	1	24	0	25
TYPE III	0	2	10	12
TYPE IV	0	1	12	13
NO OPTIONS	3	5	1	9

clearly demonstrates that the type of reporting chosen by the bidder is a function of time. In the time period over which the sample of bidders is chosen, Type I reporting prevails in the period 1978-1980. Type II reporting is dominant in the period 1981-1984. The period 1985-1987 sees the prevalence of type III and type IV reporting.

A further scrutiny of executive stock options reveals that six WKs and three HBs have no executive stock options outstanding. No systematic pattern, industry-based or otherwise, can be noted in such exclusion of executive stock option plans. For the purposes of our analysis, the value of outstanding stock options held by principal executive officers in these firms is assumed to be zero. Aside from firms with no executive stock options, the application of the methodology for valuation yields positive dollar values for the lower valuation bound of options outstanding for all WKs and all but one HB. For this one HB, the value of the lower bound of the option is negative due to an extremely low stock price at the time of the contest. In our analysis, the value of the option for this firm is assumed to be zero.

We first look at the descriptive statistics for the *observed* variables, as reported in Table 9 (on next page). The mean annual cash and cash-equivalent remuneration to principal executive officers and their mean beneficial ownership of stock is higher for WKs than for HBs. The WK firm also has more debt and a larger market value of common

equity. However, the HB firms have their principal
executive officers holding a larger amount of outstanding
executive stock options than their counterparts in the WK
firms.

Table 9.

Descriptive Statistics of Annual Cash and Cash-Equivalent Remuneration of Managers, Beneficial Stock and Stock Option Ownership by Managers, Book Value of Firm Debt and Market Value of Firm Equity for "White Knights" and Hostile Bidders on a Date Immediately Preceding the Contest

($/million)

	"WHITE KNIGHT" (N=55)		HOSTILE BIDDER (N=39)	
	MEAN	STANDARD DEVIATION	MEAN	STANDARD DEVIATION
Managerial Remuneration	4.70	2.30	3.30	2.35
Managerial Stockholdings	121.61	486.32	69.34	129.97
Managerial Options holdings	5.37	7.44	9.49	18.64
Aggregate Firm Debt	827.24	1265.34	681.58	1170.20
Aggregate Firm Equity	2178.20	2808.47	1349.10	2882.10

Table 10 (on next page) shows the correlation matrix of
these observed variables for the entire sample of bidders
(WKs and HBs). Cash and cash-equivalent remuneration is

found to be positively correlated with market value of

common equity (r=0.6). If the market value of common equity

is deemed to be a proxy for the size of the firm, this

result reinforces the findings in the relevant empirical

literature (described in chapter 2) regarding the strong

Table 10.

Correlation Matrix of Annual Cash and Cash-Equivalent
Remuneration of Managers, Beneficial Stock and Stock Option
Ownership by Managers, Book Value of Firm Debt and Market
Value of Firm Equity for "White Knights" and Hostile Bidders
on a Date Immediately Preceding the Contest

	Remuneration	Stock	Option	Debt	Equity
Remuneration	1.00				
Stock	0.07	1.0			
Option	0.18	0.06	1.00		
Debt	0.43	- 0.02	0.19	1.00	
Equity	0.60	0.24	0.21	0.42	1.00

empirical relationship between executive cash compensation

and firm size, and provides strength to the premises of our

hypotheses regarding managerial motivation.

5.2.2 Analysis of Difference Between Groups

From the primary data collected, three key

variables COM, OP and DEQ are defined (as explained in

chapter 3) which enable us to generate the hypotheses in

testable terms. COM and OP are termed as the INCENTIVE

125

VARIABLES as they directly affect managerial behavior through the incentive structure. DEQ is termed as the MONITORING VARIABLE since it is expected to affect managerial behavior indirectly through the intensity of the monitoring of managerial action by others.

COM can be interpreted as the expected annual income of principal executive officers from their direct and beneficial ownership of part of the common equity of the firm, relative to their annual cash income from cash and cash-equivalent remuneration. Higher values of COM will thus imply a greater alignment with the interests of the stockholders for maximization of managerial utility and firm-value maximizing behavior. Lower values of COM can imply that cash and cash-equivalent remuneration is the incentive primarily motivating the decision making by managers, making size maximization dominate firm-value maximization.

OP can be interpreted as the expected annual income of principal executive officers from their holdings of outstanding (unexercised and unexpired) stock options, relative to their annual cash income from cash and cash-equivalent remuneration. Stock options have two consequences in this context.

(i) They are deferred compensation, whose discounted present value is being used for purposes of valuation.[12] The ratio OP, in some sense, thus

measures the importance assigned by managers to expected income in the near-term horizon as contrasted with current cash income.

(ii) The valuation of stock options is positively related to the riskiness of the stock. The ratio OP will thus indicate, in some sense, the relative degree of risk aversion by managers. A higher OP will imply that managers are less risk averse, and are prepared to take the normal business risks in their decision-making which are necessary for earning normal returns for the firm. On the other hand, a lower value of OP may imply a lower propensity on the part of managers to undertake normal business risk. They may thus be motivated, to a greater extent, to diversify their own employment risk through size maximization (Amihud and Lev, 1981).

DEQ is a variation of the traditional debt equity ratio, and the mode of construction of the variable deliberately excludes preferred stock for ease of interpretation in the context of the study. Preferred stock is a hybrid security, and it may have some monitoring implications for some firms and none for others. The book value of debt is preferred to its market value, as significant amounts of corporate debt in the sample are privately placed. The variable, though not ideal in that the preferred stock component of the capital structure along with its monitoring implications is not considered, and

market value is not used for corporate debt wherever available, is the best suited to fulfil our objectives in the context of the study. A higher value of DEQ will imply relatively larger holdings of debt, and less "free" cash flow available to managers. There will also be better monitoring of the managers' behavior, which will act as a disincentive for non-value maximizing behavior.[13] In contrast, lower values of DEQ may enable managers to act without any constraints, for maximization of their own utility.

We analyze the differences between the measures of central tendency for the following pairs of groups, to draw inferences regarding the motivation of their managers.

(i)   WKs and HBs.

(ii) HHW WKs and non-HHW WKs.

(iii) ASB WKs and non-ASB WKs.

(iv) HHW WKs and HBs.

(v)   NON-HHW WKs and HBs.

Table 11 (on next page) provides the results of the t-tests and Wilcoxon tests for differences of the mean values of COM, OP and DEQ for the WKs and HBs. Both OP and DEQ are observed to be significantly higher, as posited in our hypothesis. We are unable to establish a significant difference for COM based on the parametric t-test, though the non-parametric Wilcoxon test does provide evidence to this effect. Thus, on the average, HBs have significantly

Table 11.

T-Test and Wilcoxon Test for Differences Between Measures of
Central Tendency of Constructed Variables COM, OP, DEQ and
MGR for the Two Groups: "White Knights" and Hostile Bidders

	"WHITE KNIGHT" (N=55)		HOSTILE BIDDER (N=39)		t-STATISTIC $(\mu_1-\mu_2)$	WILCOXON (Z)
	MEAN μ_1	STAND. DEV.	MEAN μ_2	STAND. DEV.		
COM	5.74	25.86	3.98	6.22	0.41	− 2.50**
OP	0.20	0.28	0.67	1.58	− 2.15**	− 1.09
DEQ	0.64	0.90	1.25	1.51	− 2.46**	− 2.13*
MGR	0.08	0.13	0.15	0.17	− 2.43**	− 3.07**

** $\alpha=0.01$.
* $\alpha=0.10$.

higher relative levels of debt in their capital structure,
and a relatively higher level of expected income from
outstanding stock and options compared to their cash income.

Table 12 (on next page) provides the results of the
t-tests and Wilcoxon tests for differences of the mean
values of COM, OP and DEQ for the WKs under the HHW process
and the WKs under the non-HHW process. We observe here that
COM is significantly higher (at $\alpha=0.10$) for the HHW WKs as
compared to the non-HHW WKs, which is a direct evidence of
the significantly lower incentive of HHW managers to engage

Table 12.

__T-Test and Wilcoxon Test for Differences Between Measures of
Central Tendency of Constructed Variables COM, OP, DEQ and
MGR for the Two Groups: "White Knights" Under the HHW Market
Process and "White Knights" Under the Non-HHW Market Process__

	HHW PROCESS (N=16)		NON-HHW PROCESS (N=39)		t-STATISTIC $(\mu_1-\mu_2)$	WILCOXON (Z)
	MEAN μ_1	STAND. DEV.	MEAN μ_2	STAND. DEV.		
COM	15.50	47.42	1.74	2.51	1.83[*]	1.84[*]
OP	0.27	0.40	0.17	0.22	1.26	0.41
DEQ	0.73	1.40	0.60	0.60	0.46	- 1.07
MGR	0.12	0.20	0.06	0.10	1.47	1.03

[*] $\alpha=0.10$.

in non firm-value maximizing behavior as compared to the

managers of non-HHW WKs.[14] We are unable to support our

hypotheses of significantly higher levels of OP and DEQ for

HHW WKs.

Table 13 below provides the results of the t-tests and

Wilcoxon tests for differences of mean values of WKs under

the ASB market process and WKs under the non-ASB market

process. No significant differences are observed in any of

the constructed variables, which confirms our view (as

stated in chapter 3) that partitions based on bidding

Table 13.

T-Test and Wilcoxon Test for Differences Between Measures of
Central Tendency of Constructed Variables COM, OP, DEQ and
MGR for the Two Groups: "White Knights" Under the ASB Market
Process and "White Knights" Under the Non-ASB Market Process

	ASB PROCESS (N=9)		NON-ASB PROCESS (N=46)		t-STATISTIC $(\mu_1-\mu_2)$	WILCOXON (Z)
	MEAN μ_1	STAND. DEV.	MEAN μ_2	STAND. DEV.		
COM	1.40	2.44	6.59	28.23	− 0.55	− 1.22
OP	0.14	0.09	0.21	0.30	− 0.73	0.35
DEQ	0.45	0.35	0.68	0.97	− 0.68	− 0.32
MGR	0.03	0.04	0.09	0.15	− 1.05	− 0.27

behavior *after the first bids* cannot be predicated on

divergent incentive related motives of managers.

Table 14 (on next page) and Table 15 (on page 133) list

results which provide strong indirect empirical evidence for

our principal construct. From Table 14, we observe that none

of the constructed variables COM, OP, and DEQ are different

across the two groups of HHW WKs and HBs,[15] implying the

likelihood of similar manager motivations across these two

groups. From Table 15, we observe that all the constructed

variables are significantly higher for the HBs as contrasted

to the group of non-HHW WKs. Thus, manager motivations are

likely to be different for HBs and non-HHW WKs and similar

Table 14.

T-Test and Wilcoxon Test for Differences Between Measures of Central Tendency of Constructed Variables COM, OP, DEQ and MGR for the Two Groups: "White Knights" Under the HHW Market Process and Hostile Bidders

	"WHITE KNIGHT" HHW PROCESS (N=16)		HOSTILE BIDDER (N=39)		t-STATISTIC $(\mu_1-\mu_2)$	WILCOXON (Z)
	MEAN μ_1	STAND. DEV.	MEAN μ_2	STAND. DEV.		
COM	15.50	47.42	3.98	6.22	1.51	- 0.44
OP	0.27	0.40	0.67	1.58	- 0.98	- 0.44
DEQ	0.73	1.40	1.25	1.51	- 1.19	- 1.97[*]
MGR	0.12	0.20	0.15	0.17	- 0.67	- 1.34

[*] $\alpha=0.10$.

for HBs and HHW WKs. If we assume that managers of HBs act in a firm value maximizing manner, then by implication, managers of HHW WKs will have similar incentives to act in a firm value maximizing manner and managers of non-HHW firms will likely act in a non value maximizing manner.

In terms of the hypotheses listed in Chapter 3 (pages 62-67), the results in Tables 11-13 evidence empirical support for hypotheses 1, 2, 3, 4, & 7. We are unable to establish the validity of hypotheses 5 & 6 from the results in Table 12, though the results in Tables 14 & 15 do provide an indirect indication of their appropriateness.

<center>Table 15.</center>

<center>T-Test and Wilcoxon Test for Differences Between Measures of
Central Tendency of Constructed Variables COM, OP, DEQ and
MGR for the Two Groups: "White Knights" Under the Non-HHW
Process and Hostile Bidders</center>

	"WHITE KNIGHT" NON-HHW PROCESS (N=39)		HOSTILE BIDDER (N=39)		t-STATISTIC $(\mu_1 - \mu_2)$	WILCOXON (Z)
	MEAN	STAND. DEV.	MEAN	STAND. DEV.		
COM	1.74	2.51	3.98	6.22	$- 2.09^{**}$	$- 3.02^{**}$
OP	0.17	0.22	0.67	1.58	$- 1.94^{*}$	$- 1.18$
DEQ	0.60	0.60	1.25	1.51	$- 2.48^{**}$	$- 1.70^{*}$
MGR	0.06	0.10	0.15	0.17	$- 2.97^{**}$	$- 3.26^{**}$

$**$ α=0.01.
$*$ α=0.10.

5.2.3 Cross-sectional Relationships

We next endeavor to explain the variation in market
reaction to bids by the bidding firms (measured by the two
day CARs) due to variations in the managerial incentive and
monitoring disincentive variables COM, OP and DEQ. Table 16
(on next page) reports the results of testing the
explanatory variables for multicollinearity. It can be seen
from the table that the three independent variables are not
correlated with one another. The auxilliary regressions

<center>133</center>

Table 16.

Detection of Multicollinearity:

Correlation Matrix of Constructed Variables COM, OP, DEQ; and Auxiliary Regressions with Each of the Variables COM, OP, DEQ as the Dependent Variable and the Other Two as Explanatory Variables

CORRELATION MATRIX

COM	1.00			
OP	0.04	1.00		
DEQ	- 0.08	0.00	1.00	
MGR	0.40	- 0.04	0.14	1.00
	COM	OP	DEQ	MGR

AUXILIARY REGRESSIONS

DEPENDENT VARIABLE	EXPLANATORY VARIABLE	$F_{(2,91)}$	R^2	ESTIMATED COEFFICIENT	t
1. COM	OP	0.40	-0.01	0.8	0.4
	DEQ			-1.4	-0.8
2. OP	COM	0.08	-0.02	0.002	0.4
	DEQ			0.004	0.04
3. DEQ	OP	0.31	-0.02	-0.005	-0.78
	DEQ			0.005	0.04

reveal that any two of the variables together are not correlated with the third explanatory variable.

Table 17 (on next page) reports the results of the Chow test for structural differences between the HHW WKs, the

Table 17.

Chow Test for Structural Differences Between the Three Groups of Bidding Firms viz. Hostile Bidders, "White Knights" Under the HHW Process, and "White Knights" Under the Non-HHW Process, in Explaining the Two Day CAR Ending on the Date of the Bid Through the Constructed Explanatory Variables COM, OP, DEQ

<u>MODEL</u>: $CAR = \alpha + \beta_1 * COM + \beta_2 * OP + \beta_3 * DEQ + \epsilon$

<u>UNRESTRICTED MODEL</u>:

Sum of squared residuals:

hostile bidders	= 0.072047
"white knights" under HHW process	= 0.024121
"white knights" under non-HHW process	= 0.048321
Unrestricted sum of squares	= 0.144489

<u>RESTRICTED MODEL</u>:

Sum of squared residuals   = 0.174770

$F_{(8,90)} = 2.14^*$

* $\alpha=0.05$.

non-HHW WKs and the HBs in explaining the variation in two day CARs through the constructed managerial incentive and

Table 18.

$F_{(5,88)}$ = 8.032[**]

Multiple Regression to Evaluate the Impact of the Constructed Variables COM, OP AND DEQ for all Bidders, and the Differential Impact of "White Knights" Under the HHW Process and the "White Knights" Under the Non-HHW Process, on the Two Day CAR Ending on the Date of the Bid

Explanatory variables:

DUM$_1$ = 1, if bidder is "white knight" under HHW process.
     = 0 otherwise.

DUM$_2$ = 1, if bidder is the first hostile bidder.
     = 0 otherwise.

COM, OP, DEQ.

Dependent variable:

CAR = two day market adjusted mean cumulative abnormal
      return for the bidding firm ending on the date of
      its first bid.

MODEL:

$$CAR = \alpha + \alpha_1 * DUM_1 + \alpha_2 * DUM_2 + \beta_1 * COM + \beta_2 * OP + \beta_3 * DEQ + \epsilon$$

VARIABLE	COEFFICIENT ESTIMATOR	VALUE	t-STATISTIC
CONSTANT	a	− 0.0458	− 6.40[**]
DUM$_1$	a$_1$	0.0278	2.20[**]
DUM$_2$	a$_2$	0.0326	3.20[**]
COM	b$_1$	0.0001	0.55
OP	b$_2$	0.0181	4.23[**]
DEQ	b$_3$	0.0017	0.45

Adjusted R^2 = 0.27

$F_{(5,88)}$ = 8.032[**]

[**] α=0.01.

monitoring disincentive variables. From the Chow test, the null hypothesis of no difference between the three groups is rejected. We accordingly construct two dummy variables to represent the HHW WK and the HB. The model is specified in Table 18 (on previous page).

From Table 18, we note that the regression has a significant F-statistic, implying that the null hypothesis of all the coefficients being zero is rejected. There is a significant negative intercept, implying that the non-HHW WK will have a negative two day CAR. This negative CAR will be significantly reduced if the bidder is the WK under the HHW market process, or if it is the first HB bid. Once again, the HHW WKs and HBs seem to affect the dependent variable in a similar manner, significantly different from the 2 day CAR for the non-HHW WK.[16] The coefficient of the constructed variable OP is positive and significant, while the coefficients for COM and DEQ are positive and insignificant. This implies that the market perceives managers to be perhaps motivated more by incentives related to the near term future horizon (OP) than by the incentive situation in the present (COM), or monitoring disincentives (DEQ), and this is reflected in a significantly higher positive (or lower negative) CAR with an increase in OP. The significant relationship between OP and CAR also shows that in the absence of relatively high stock option holdings by managers, as exists for WKs (from table 11), the market

might perceive an acquisition attempt by the late bidder as an effort to diversify the employment risk of managers, and thus react more negatively to such a move. A relatively higher value of OP, as exists for HBs and HHW WKs, will reduce the propensity of managers for diversifying employment risk through firm enlargement and encourage risk taking for firm value maximization.

The model as described in Table 18 is investigated for heteroskedasticity using White's test. The test yields a test statistic of 17.84 for 26 degrees of freedom. A comparison with the chi-square distribution fails to reject the null hypothesis of homoskedasticity.

Summarizing, the T-tests reveal similarities in constructed variables between the HHW WKs and the HBs, and differences in constructed variables between HHW WKs and HBs on the one hand and non-HHW WKs on the other. The variable COM is significantly higher for the HHW WKs as compared to the non-HHW WKs. The Chow test and the results of the regression reinforce the view that the classification of bidders into HBs, HHW WKs and non-HHW WKs is valid as it differentially explains the two day CAR ending on the date of the first bid. The variable OP is observed to significantly explain the variation in CAR. Though the signs of the coefficients COM and DEQ are positive as expected, they are not found to be significant in explaining the two day CAR ending on the date of the first bid.

138

1. There are eight instances of preemptive acquirers of targets expecting to be in play, of which only three are public companies. In all these cases, the acquirers are successful in acquiring targets. CARs during the preemptive offer are found to be positive in all cases, in conformity with the CAR profile observed for friendly acquisitions.

2. Two of the contests are actually four party contests, with two HBs in each case. In the first case, the first HB is an OTC firm, and is hence excluded from the analysis. In the second case, the second HB is not considered in the analysis. However, the WKs in both the instances are treated as HHW WKs in terms of the definition in Chapter 3.

3. Of the 62 WKs in the sample, 52 firms are successful in acquiring the respective target firm. In ten contests, the WK fails to prevail. In four of these contests, the HB prevails by overbidding the WK. In the other six contests, the target is finally acquired by a third bidder (which is another WK in two of these contests). It is noteworthy that once the target is in play, it ultimately ceases to exist as an independent entity in all the 62 contests, irrespective of the success or failure of the first WK in its acquisition efforts.

4. For the WKs which fail to prevail, events beyond the date of withdrawal of the WK are not considered in the study, since the participation of the WK determines the span of interest in the contests studied. In these situations, D_3 indicates the subsequent bid by the hostile bidder, and D_4 indicates withdrawal by the WK. In instances where the unsuccessful WK withdrew before the subsequent sequential bid of the first bidder, D_3 and D_4 are defined to coincide on the date of withdrawal of the WK from the contest. Thus, by construction, D_3 is designed either to precede or to coincide with D_4. For the successful WKs, the actual acquisition is completed on D_4, though the outcome of the auction is public knowledge on D_3.

5. (D_2+1,D_1') represents the interval between each sequence WH, and $(D_1''+1,D_2')$ represents the interval between each subsequent sequence HW after the first HW. $(D_2''+1,D_3)$ represents the interval between the last WK bid and HB withdrawal. These intervals are thus related through the identity:
    $$(D_2+1, D_3) \equiv (D_2+1, D_1'')+(D_1''+1, D_2')+(D_2''+1, D_3)$$

6. English auctions assume that the value of the item being sold does not change during the duration of the auction. The short length of the auction process relative to the length of the control contest makes it less likely that the value of the target firm will change significantly during the auction period.

7. If the WK bid signals poor management abilities, and the antitakeover strategy fails owing to the inability of the WK to prevail and acquire the target, then the WK could likely become the target of future bids by others. A case in point is Gulf Oil Corp., which lost approx. 1 billion dollars in equity value over two days when it announced that it was going to be the WK in the takeover defense of Cities Service against the hostile bid of Mesa Petroleum in June, 1982. That acquisition fell through on anti-trust grounds. In February 1984, Gulf Oil Corp. was itself the target of a hostile takeover bid by Mesa Petroleum, and was acquired by a WK, Standard Oil Co. of California (Chevron).

8. In fact, there is only one instance where the CAR for (D_2-1, D_2) was positive and significant. The event occurred in 1987 when Dow Chemical Corp. was the WK acquiring La Maur Inc. against the hostile bid of Alberto-Culver Co.

9. While the HB sample is not representative of all hostile bidders, since it is a secondary sample derived from the WK sample, the returns pattern here is observed to conform more to the earlier work on bidder returns, reviewed in Jensen and Ruback (1983), than to the more recent work reviewed in Black (1989).

10. We are aware of the small size of the HHW sub-sample (and the ASB sub-sample discussed in section 5.1.6) and its consequences for hypothesis testing. Yet, we feel confident regarding our inferences, based on the magnitude of the relative CARs and the absence of inconsistencies in our results.

11. This percentage is comparable to the 60% negative CARs among HBs for the two days prior to their first bid at D_1.

12. The deferment is only for a short term, as opposed to other longer term contingent forms of remuneration like retirement benefits.

13. With higher values of DEQ, managers will be operating under a high financial risk. They might have a propensity to undertake suboptimal investments such as

risky-asset substitution on behalf of their
stockholders, since the stockholders would loose
relatively little in the event of default on debt.
Here, the managers are acting in the best interests of
the stockholders; yet agency conflict between
stockholders and bondholders can cause reduction in the
value of the firm. Bondholders are aware of this
possibility, and employ monitoring mechanisms to
prevent its occurrence. (See, Myers, 1977; Smith and
Warner, 1979).

14. It may be noted that the variable MGR defined in
chapter 3 is unable to discriminate between the HHW WKs
and the non-HHW WKs.

15. The Wilcoxon test shows that the DEQ for the hostile
bidders is significantly higher than the DEQ for "White
Knights" under the HHW process. This result, along
with the subsequent result in Table 15 that the DEQ for
hostile bidders is significantly higher than the DEQ
for "White Knights" under the non-HHW process, seems to
indicate that hostile bidders generally have higher
relative levels of debt as compared to "White Knights".
This implies a greater probability of outside
monitoring of managerial actions for hostile bidders,
and a corresponding disincentive for these managers to
make bids that may be construed as non firm value
maximizing.

16. The regression is also run by creating dummies for HHW
and non-HHW WKs. While the dummy for the non-HHW WK has
a significant coefficient to demonstrate its difference
from the HB, the dummy for the HHW WK has a coefficient
that is not significant, implying the inability of the
regression to distinguish between HHW WK and HB in
explaining two day CARs.

CHAPTER 6

RESEARCH CONCLUSIONS

6.1 Summary of Findings of the Study

The results obtained in this dissertation show that not
all WK acquisitions are wealth reducing transactions. The
negative perception of the market toward the WK seems to be
a function of the sequence of bidding in the contest, and is
considerably more ambivalent under the HHW market process
where the WK bid follows two successive bids by the same HB.
The market-adjusted mean cumulative abnormal return for the
HHW WKs over the entire period of the contest is not
significant. On the other hand, empirical evidence shows
that the non-HHW WK bids have a greater likelihood of being
wealth reducing. In the ASB market process where the WK
engages in sequential bidding with the HB after its first
bid, each successive bid of the WK is observed to be a
wealth reducing transaction.

The overall behavior of the WKs, though significantly
different from the control group of HBs, is certainly not
homogeneous. The wealth reduction involved when the HHW WKs
make their bid does seem to be at variance with the wealth
increasing bids of the control group of HBs. Yet, the
extent of wealth reduction for these WKs during their bid is
significantly less than that of non-HHW WKs during the bid,
and as a further contrast, insignificant over the entire
control contest. This pattern for HHW WKs is thus more in

conformity with the distribution of bidder returns as observed in recent studies and summarized in Black (1989). It is possible that the varying investor reaction to the bids of the HHW WKs, when compared to the bids of the HBs is a consequence of the *subsequent* nature of WK bids. In contrast, the negative market reaction to bids by non-HHW WKs, which is much more pervasive, large in economic magnitudes, and increasing in size over the length of the contest, is more likely t be ascribable to manager motivations leading to a possible divergence from the goal of firm value maximization.

Empirical analysis of market data on WKs thus prompt us to investigate the market process based segmentation of WKs into HHW WKs and non-HHW WKs as a reflection of the manager motivations involved in making the bids. Perhaps, the managers of HHW WKs desire to act in a firm value maximizing manner, but being *subsequent* bidders, are just afflicted with hubris or the winner's curse. Several of these WKs even have wealth increasing bids, indicating their success in eliminating the winner's curse. In comparison, the widespread and economically larger wealth reducing actions of the managers of the non-HHW WKs seem to be planned in advance, perhaps because of the availability of free cash flow and/or an urge to maximize growth of their firm.

In Chapter 1, we suggest that overpayments by bidding firms may occur because of two reasons:
(i) firm-value maximizing behavior by managers, and hubris

or "winner's curse" arising out of the bidding process in acquisitions.

(ii) non firm-value maximizing behavior by managers due to incentive misalignment resulting in agency conflicts with stockholders, or availability of "free" cash flow encouraging size maximization through acquisitions.

We further submit that for WKs, whether the overpayments are due to (i) or (ii) above will depend on the position of the WK in the bidding queue. If the WK enters the bidding after *two* bids by the HB (an HHW market process), it is likely that they have made their bid on the basis of more information (including that contained in the second bid of the HB). They will also likely have appraised the target more thoroughly, as proxied by a greater length of time between their bid and the preceding bid of the HB. This results in the observed negative CAR during their bid and the proportion of negative CARs in their portfolio being considerably smaller than that for WKs under the non-HHW market process. The overpayments, being small, may be ascribed to hubris or the winner's curse in the context of the firm wealth maximizing intentions of the managers. An implication of this result is the absence of any intrinsic difference between the managerial objectives of HHW WKs and HBs in maximizing the value of the firm.

Much stronger negative market reactions to WKs participating in the non-HHW market processes indicate the

market's apprehension of non-firm value maximizing behavior by the managers of these WKs. Our estimate of the market's view in this regard is further supported when examining the *subsequent* bidding behavior of HBs and WKs in ASB market processes, which are a subset of the non-HHW market process. *Subsequent* bids by HBs under the ASB market process do not elicit any negative market response, since HB managers are assumed to be firm-value maximizing. However, each *subsequent* bid by the ASB WKs is always met with a strong negative market reaction, implying that these managers may not be maximizing firm value through their proposed acquisition. Since practically all the ASB WKs are non-HHW WKs as well, it is feasible that managers of non-HHW WKs in general have intrinsically different goals relative to the managers of HHW WKs and HBs, leading to non firm value maximizing behavior.

We feel that on an ex-ante basis, managerial motivation for firm-value maximization can be evaluated by measuring the direct incentive effects associated with the proportion of stock and stock options in the compensation structure of managers. However, from existing econometric evidence (detailed in Chapter 2), the proportion of cash income in the compensation is an incentive for growth or size maximization. An appropriate ratio of these two factors in the compensation may thus enable us to evaluate, on a comparative basis, the relative impact on managerial

behavior of the incentives for firm value maximization and size maximization. In addition, external monitoring of manager compliance with the goal of firm-value maximization can limit deviations due to agency conflicts. It may be noted in this regard that despite its obvious advantages in eliminating agency conflicts, it is not possible to pay managers their entire compensation in the form of stock and stock options, for reasons mentioned in Jensen and Murphy (1990) and summarized in Chapter 2. Accordingly, we construct two *incentive* variables and one *monitoring* variable to incorporate the divergent incentive implications of stock/stock options and cash income, and consider the effectiveness of monitoring. The *incentive* variables are the income equivalent of managerial stockholding (COM) and the income equivalent of managerial holding of executive stock options (OP), both relative to the annual cash and cash-equivalent income of the managers. The *monitoring* variable is the level of firm debt (DEQ) relative to the market value of firm equity. From the investor reaction to bidding behavior reviewed earlier, we would expect COM, OP and DEQ for the firm value maximizing HBs and HHW WKs to be higher, because of the relatively greater proportion of stock and stock options directing the incentives toward firm value maximizing behavior, and the effectiveness of monitoring in these situations. On the contrary, values of COM, OP and DEQ are likely to be lower for non-HHW WKs

because of the relatively greater role of cash income in channelizing incentives toward growth or size maximizing behavior. The results of our analysis are summarized below (where the subscripts indicate the group to which the variable belongs, and the notation $\approx$ indicates the inability of the tests to distinguish between the two groups):

Incentive Variables

COM

$$COM_{HHW} > COM_{NON-HHW}$$

$$COM_{HB} > COM_{NON-HHW}$$

$$COM_{HHW} \approx COM_{HB}$$

$$COM_{ASB} \approx COM_{NON-ASB}$$

OP

$$OP_{HHW} \approx OP_{NON-HHW}$$

$$OP_{HB} > OP_{NON-HHW}^{*}$$

$$OP_{HHW} \approx OP_{HB}$$

$$OP_{ASB} \approx OP_{NON-ASB}$$

*   According to the **Wilcoxon** test, $OP_{HB} \approx OP_{NON-HHW}$.

Monitoring Variable

DEQ

$$DEQ_{HHW} \approx DEQ_{NON-HHW}$$

$$DEQ_{HB} > DEQ_{NON-HHW}$$

$$DEQ_{HHW} \approx DEQ_{HB}^{**}$$

$$DEQ_{ASB} \approx DEQ_{NON-ASB}$$

**   According to the **Wilcoxon** test, $DEQ_{HB} > DEQ_{HHW}$.

The above results provide direct evidence that differences in WKs based on their position in the sequence of bidding (upto their *first* bid) in corporate control contests indeed reflect the varying incentives motivating the managers. While such incentive alignments are not readily observable, varying investor reaction to the bids by the two categories of WKs indicates the market's differential perception of the objectives of the respective managers. This is additionally confirmed by the results of the Chow test, which show that there are structural differences between the non-HHW WKs and the HHW WKs (and the HBs) in explaining the two day CAR ending on the date of the first bid. The use of dummies by two of the groups in a regression shows that the market perception of bids by HHW WKs and HBs is statistically indistinguishable. However, the reaction to bids by non-HHW WKs is significantly more negative.

We can thus conclude that based on the significantly higher value for the *incentive* variable COM for HHW WKs relative to non-HHW WKs, the significantly higher values for *all* the *incentive* and *monitoring* variables of HBs as compared to non-HHW WKs, and the inability of the tests to find any difference between *these* variables for HHW WKs and HBs, managers of HBs and HHW WKs are more likely to be firm-value maximizers. Negative market reactions to their bids, as observed from time to time for a large section of these

firms, could reasonably be ascribed to affliction with hubris or the "winner's curse". However, the significantly lower values of COM, OP and DEQ for non-HHW WKs indicate that their managers are less likely to be firm value maximizers. The preponderance of negative market reaction to their bids implies that non firm value maximizing hypotheses like size maximization or "free" cash flow may be motivating the bids of these non-HHW WKs. Incidentally, it is clear from the results that the incentive alignments of the managers are reflected only in their *first* bid. Subsequent bids by the WK (captured by the ASB process) presumably follow the same managerial motivations and can therefore not be distinguished through the defined variables COM, OP and DEQ.

6.2 Further Implications

The results obtained for the variable COM are directly *consistent* across the three groups of HBs, HHW WKs and non-HHW WKs, and are supported by both the parametric and non-parametric tests. However, the inferences regarding the ability of OP and DEQ to differentiate between the relative groups are weaker, being *not inconsistent* across the groups. In particular, our theory requires that for the variables OP and DEQ, the relevant statistical test provide evidence of a significant difference between the measure of central tendency for the HHW and non-HHW WKs. However, the tests, which are structured on the null hypothesis of equality

among groups, are observed not to be powerful enough to reject the null at the required level of confidence. In addition, the parametric and non-parametric tests do not yield identical results for these variables. While we have based our general inferences regarding OP and DEQ on the results of the t-test between pairs of groups, the lack of support from the Wilcoxon test does make the evidence weaker. However, the non-parametric results also provide some interesting insights regarding these variables.

In respect of the variable OP, the inability of the Wilcoxon test to distinguish between HBs and non-HHW WKs may additionally provide weak evidence that OP is not different for any of the three groups. If OP is considered to be a proxy for the business risk propensity of managers, then it is possible to envisage that apriori, the distribution of risk aversion is not significantly different across the three groups of HHW WKs, non-HHW WKs and HBs. However, in preference to the variable COM which reflects the *existing* managerial incentives, the market seems to price the acquisition bid (through the two day CARs) on the expected incentive alignments of managers in the *near term future* (through the variable OP). This can be said to indicate the market's view that current managerial behavior is more likely to be governed by the incentive expectations of the managers in the near-term horizon.

The significant impact of OP on CAR is in addition to the separate, significant impact on CAR of dummy variables representing the three groups of HHW WKs, non-HHW WKs and HBs. The variable COM is a reflection, *in part*, of the variable OP in the past, through the exercise of stock options by managers. To this extent, its influence on managerial action is likely to have been directly priced by the market in the past on a prospective basis, and firms categorized at the prevailing time as value maximizers or otherwise based on their incentive configurations. The market is thus likely to be somewhat aware during the bid, from past information on OP values, of the group to which the firm belongs. This additional information causes the market to discriminate against the non-HHW WK through a negative CAR, in addition to the current linear impact of OP on CAR.

Summarizing, the market apriori reacts negatively to the bid by the group of non-HHW WKs, which can be distinguished from the other groups by a significantly smaller value of the variable COM. Additionally, managers with a higher value of OP during their bid are considered by the market to be motivated to undertake normal business risk for direct executive stock option benefits in the near-term horizon. The acquisition activity of these managers is viewed by the market more positively since it is considered to be firm value maximizing. Managers with a low value of OP

are not likely to have the same incentive alignment for taking normal business risk and maximizing their near-term utility. For them, the investors may evaluate acquisition activity as an effort to diversify employment risk, causing a strong negative market reaction, since the action accentuates agency conflicts.

For the monitoring effectiveness variable DEQ, the Wilcoxon test indicates that the variable has a lower value for both HHW WKs and non-HHW WKs relative to HBs. While there is little doubt that the high DEQ for HBs is an indication of monitoring effectiveness for value maximizing behavior, it is also feasible that lower monitoring makes it somewhat easier for WKs to come in with *subsequent* bids in relative haste. Thus, while monitoring may not play a direct role in distinguishing between the HHW WKs and non-HHW WKs, ex-ante managerial incentives, in themselves, cause the HHW WKs to be more like HBs. We do not find evidence that the market directly prices effectiveness of monitoring through a significant impact on the two day CAR, though the sign is positive as expected.

6.3 <u>Contribution of the Study</u>

We feel that the dissertation makes a number of important contributions to the existing body of knowledge in the fields of mergers and acquisitions, agency theory, and compensation structures. It is the first study to simultaneously assess the impact of two bidders in the same

contest for control of a target's assets when one is hostile
and the other is friendly. For the set of late entry
friendly bidders in these hostile takeover contests, called
"white knights" (WKs), the study is again the first to
establish the differential nature of WK behavior based on
their position in the bidding queue. In general, the HB bid
is followed by a WK bid leading to a WK acquisition of the
target firm. However, one group of WKs is observed to
follow a different market process, called the HHW market
process, in as much as it enters the bidding only after the
hostile bidder has made a second higher bid for the target
firm on rejection of its first bid. The market reaction to
bids by this category of bidders is radically different from
the market reaction to the complementary set of WKs. Another
group of WKs is observed to follow a market process called
the ASB market process where the HB and the WK alternate in
bidding with successively higher bids till the WK wins the
contest. The market reaction here is an accumulation of the
reaction to single WK bids. Thus, we can make a partition
of the sample of bidders in corporate control contests
involving two or more bidders, with each bidder having a
different approach to the acquisition of the same target
firm, based on

(i) the inclination of the bidder, i.e. hostile or friendly

(ii) the timing and sequence of bidding by the hostile and
     friendly bidders in the acquisition process.

Our hypothesized market reactions for these different categories of bidders, based on insights from auction theory, is supported by the empirical evidence. This enables us to make inferences regarding the possible firm value maximizing motivation of the managers of the WK firms.

The design of the study provides an added benefit in that there is an inherent control in the form of the HB bid with which the different categories of WK bids can be compared. Subsequent HB bids can also be compared with subsequent WK bids under the ASB market process. In the absence of any systematic size or industry based biases in the selection of the hostile bidder and the WK, the use of the HB as the control is effective and appropriate in distinguishing market reaction to bids based on the status of the bidder (friendly or hostile) and the sequence of bidding.

Investor response to bidding behavior shows that there is a significant difference in reactions depending upon who makes the bid, the HB or the WK. When the WK makes the bid, the reaction to the HHW WK differs from the reaction to the non-HHW WK. Overall, the response to WK bids is strongly negative, indicating that managers of some WKs may not always be acting in the best interests of the stockholders. The response to the bids by HHW WKs is weakly negative, more in conformity with the response to bids by HBs, leading us to believe that the point of entry of the WK in the bidding

process (HHW or non-HHW) may indeed be the critical factor discriminating between WK manager motivations.

We believe that in the first instance, manager motivations to maximize stockholder wealth will be governed by the incentive alignments in their compensation packages, to reduce the potential agency conflict between the stockholders (principals) and their agents (managers). In addition, a disincentive to managers from engaging in activity where there could be a potential conflict of interest with the stockholders, can come from monitoring of their activity, which increases with the existence of debt. Thus, the creation of incentives for managers to engage in maximization of firm value originates from the stockholders, and the effectiveness of monitoring to discourage managers from deviating from the goal of firm-value maximization usually originates from the bondholders through bond covenants.

In its success in defining and measuring these incentive and monitoring variables through appropriate proxies, and showing how these proxy variables are significantly different for the different groups of WKs and HBs based on bidding behavior, this study contributes to the literature on agency theory. For the first time, to our knowledge, compensation structures of managers are divided into a firm value maximizing incentive component (the income equivalent of direct and beneficial ownership of stock and

stock options by managers) and a size-maximizing cash component, and the ratio of the two considered to be the appropriate measure of the incentive alignment of managers. Stock options are examined separately as their valuation additionally incorporates the extent of riskiness involved in managerial activity. Monitoring effectiveness is proxied by a variant of the debt-equity ratio. We find evidence that the incentive and monitoring variables are higher for HHW WKs and HBs, which indicates that possible overpayment by the managers of these firms may be due to reasons consistent with firm value maximization. On the contrary, managers of non-HHW WK firms have greater incentives to increase size and diversify employment risk due to the lower proportion of stock and stock options relative to cash and cash-equivalent compensation in their compensation packages.

The results of the study thus establish that managerial ownership of firm stock is only one aspect of the incentive structure of the manager. For a complete analysis, the cash compensation of the manager, which motivates him/her to increase size and provides little incentive to maximize firm value, also needs to be considered. The ratios defined by us to measure incentives incorporate both these effects. In addition, the ratio pertaining to executive stock options has a strong positive relationship with the CAR in the market model at the time of the bid. This ratio can be said to measure managerial propensity to take normal business

risk for firm value maximization. Firms whose managers may
prefer to diversify their employment risk through size
maximization, since there is relatively less incentive for
assuming normal business risk owing to lower holding of
stock options, are penalized by the market through larger
negative excess returns. Thus, the incentive structure of
managers is directly linked to managerial activity observed
in bidding behavior. In a broader context, this approach
makes it possible to study the impact of incentives on the
activities of managers involved in acquisition decisions.

We consider the dissertation to be conceptually broad
based for the purpose of studying the behavior of late entry
collaborative bidding firms in corporate control contests.
However, our research results and inferences therefrom are
limited by the approximations necessary to standardize the
compensation/beneficial ownership data on managers available
from the proxy statements, as detailed in Chapter 4.

6.4 Avenues for Further Research

A number of additional hypotheses can be generated and
tested relating to the partitioning based on timing and
sequence of the WK bid. A study of premiums offered over
preceding bids is likely to reveal a significantly lower
premium offered by HHW WKs over the preceding bid, as
compared to non-HHW WKs. In the context of the ASB market
process, these premiums over preceding bids should be higher
for the subsequent WK bids than for the subsequent HB bids.

A study of the cash and stock components of each bid will likely establish a lower proportion of cash in HHW WK bids and HB bids. However, the method of payment in WK bids may also be influenced by the method of payment offered by the HB which is the first bidder. A larger share of cash in non-HHW WK bids will also indicate the use of the strategy as an antitakeover device by these WKs, to enable them to become less attractive as takeover targets and hence less susceptible to the disciplining mechanism of hostile takeovers.

Three avenues have been identified by researchers as preventing managers from pursuing objectives divergent from firm value maximization (see chapter 3):

(i) The managerial labor market, which, if efficient, will penalize non firm value maximizing managers through a reduction in their intrinsic value.

(ii) Direct provision of suitable incentives to managers in their compensation packages to motivate actions maximizing firm value.

(iii) Monitoring mechanisms as direct disincentives to non firm value maximizing behavior by managers:

    (a) Internal monitoring, arising out of the existence of bond covenants.

    (b) External monitoring, through the disciplining mechanism of the hostile takeover.

With regard to (i) above, the efficiency of the managerial labor market has not been established. It is also extremely difficult to price human capital and measure value changes in human capital. So, the managerial labor market is a non-sequitur, as a practical matter. In our study, we have shown the effectiveness of (ii) and [iii(a)] above as strategies to motivate managers to undertake firm value maximizing actions. A larger proportion of cash in bids by non-HHW WKs will indirectly indicate the effectiveness of [iii(b)], as the actions of these managers can be interpreted as an attempt to evade the disciplining mechanism of the hostile takeover by making their firm less attractive as a target.

Corporate control contests involving WKs provide an opportunity to study value transfers between firms and the economic welfare consequences of such transfers. Existing studies on wealth transfers have divided contestants into two categories, viz. the bidders and the targets, and noted dollar gains in equity values for both categories. However, in the limited context of control contexts involving WKs, there is no doubt that a large number of WKs incur significant dollar losses. An estimate of such dollar losses, and its comparison with dollar gains by targets and possible gains by hostile bidders, can yield interesting inferences regarding value transfers between contestants in hostile takeover bids involving "white knights".

Finally, this dissertation highlights the difference in agency relationships between the managers and stockholders of the HHW WKs, non-HHW WKs and HBs. Managers of HBs and HHW WKs are said to be firm value maximizers since the income equivalent of stock and stock options play a greater role in their incentives relative to cash income. On the other hand, the incentives of managers of non-HHW WKs are dominated by cash compensation. A principal premise of the dissertation is that actions of the managers, including acquisition activity, are likely to be a reflection of their ex-ante incentive alignments. Accordingly, the relative compensation factors most influencing managerial behavior should increase, ex-post, after the activity has been undertaken, for the manager to maximize his/her utility. Thus, for the non-HHW WK firms, there should be a significant increase in annual cash income after the acquisition. For the managers of HHW WKs or HBs, the result of successful acquisition activity should be a higher proportion of stock and stock options. This can be easily tested for individual managers through a scrutiny of the change in their stock holdings and compensation of through the control contest.

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