

AGENCY THEORY AND CORPORATE ACQUISITIONS:
EMPIRICAL TEST FOR A CERTAIN CLASS
OF CORPORATE TAKEOVERS

BY

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CHAPTER I

INTRODUCTION

Corporate Acquisitions As Investments

There has been a great deal of activity and interest in the corporate takeover market in recent years. Several general theories have been proposed to explain this type of business expansion [Palepu, 1986]. Each theory is based on the underlying premise that the normative goal of management is to maximize shareholder wealth. For empirical studies, the common measure of risk adjusted shareholder wealth is stock price.

Management may increase stock price by allocating resources to positive net present value investments. Successful maximization of shareholder wealth, measured as stock price, is achieved when all the firm's assets are invested in a portfolio of positive net present value projects. On a theoretical level, stock price should rise with the addition of any positive net present value project, without regard to the project's unique pattern of risk-adjusted expected future cash flows.

The acquiring firm may find that a proposed corporate acquisition is a positive net present value investment.

Each proposed corporate acquisition will have distinctive expected future cash flows/risk characteristics. Thus, corporate acquisitions may be positive net present value projects for a variety of reasons [Halpern, 1983]. Five competing theories for the source of the positive net present value are discussed commonly in the literature. One of these, called agency theory, is the focus of this study. A brief discussion of each of five theories for corporate acquisitions follows.

Productive Economies of Scale

Productive economies of scale is one source of risk-adjusted expected future cash flows which may lead to a positive net present value corporate acquisition. Productive economies of scale are said to occur when the postacquisition average cost per unit produced is below the preacquisition level. The additional expected future cost savings contributes to the positive net present value of such an acquisition. Several identifiable causes may contribute to the reduction in the average cost per unit. The least complicated scenario is one in which the postacquisition production quantity gives a new lower cost per unit equilibrium on the firm's long run average cost curve. A second situation occurs when labor and capital have unequal marginal costs of productive capacity. Allowing substitution of labor and capital, the

postacquisition optimal input factor ratio may yield a lower cost per unit.

When external forces cause changes affecting the entire industry, the result may be a similar reduction in average cost per unit. For example, in periods of cost push inflation, the industry's long run average cost curve may shift or obtain a new shape. Without changing production plans, the preacquisition firm's operations are using higher priced input factors resulting in a higher long run average cost per unit. Postacquisition, the new level of production is likely to involve a different short run average cost curve. If the shift in the short run curve is sufficient, this may mitigate the effects of the cost push inflation. The expected future average cost per unit will be reduced yielding productive economies of scale.

Financial Synergies

A different class of acquisitions may provide financial synergies. The usual example involves acquisition of a small, young firm which is operating in a high growth, high risk industry. Prior to acquisition, management may have identified many positive net present value projects in their area of expertise. With limited tangible assets, no long term credit history, and the high risk nature of the industry, external funding may be difficult or almost impossible to secure. Even when available, the cost of

capital may be so high that the net present value of some projects becomes negative. In this scenario, management faces budget constraints which hinder further growth.

Postacquisition, the combined entity encompasses a larger group of assets, and operates at a risk level based on the combined portfolio of investments. The market appraises the credit worthiness of the new entity in making funds available, and establishing a required cost of capital. Funds may be more readily available, and the cost of capital may be below that of the acquired firm alone. Under these conditions, the investment budget constraints are now less restrictive. With the addition of the new positive net present value projects to the firm's investment portfolio, the corporate acquisition may have a positive net present value.

Technological Synergies

Technological synergies may occur when the managements of the acquiring and acquired firms have different skills and expertise. Communication and consulting may lead to development of new technologies for existing problems, or application of existing technology to new problems. In addition, centralization and integration of similar activities may justify use of expanded or improved equipment. When these conditions allow production of goods or services at a lower average cost per unit, the future

expected cost savings contribute to the positive net present value of the acquisition.

Competitive Advantage

An attempt to alter the competitive structure of the industry may motivate some acquisitions. In industries with high barriers to entry, the number of firms tends to grow slowly. Thus, an intraindustry acquisition may give the means for a firm to increase its market share substantially. The high cost of entry is of prime importance in altering the competitive structure of the industry in the short run, and the basis for predicting a less competitive environment in the future.

With more limited competition in the industry and increased market share, the postacquisition firm may earn higher marginal profits. The increased marginal profits provide positive expected future cash flows and, after allowing for risk adjustments, the business acquisition may be a positive net present value investment.

Reduction of Agency Costs

An additional group of interest is one in which the preacquisition acquired firm is incurring excessive positive agency costs. Agency costs arise whenever management allocates firm resources such that the shareholders' wealth is not maximized. Such managerial

decisions may be the result of differences in risk preferences between management and shareholders. Perhaps, the firm lacks adequate motivational incentives to ensure optimal use of management's expertise and authority. Insufficient monitoring of the manager's behavior can lead to inefficiency or even shirking.

It is both difficult and costly to develop and implement contracts to minimize agency costs. In a cost-benefit analysis, elimination of all agency costs is cost prohibitive. Thus, even in well managed firms, many agency costs may be present due to the separation of ownership and control. However, other agency costs can be reasonably avoidable. These avoidable costs are termed excessive positive agency costs.

For a particular cost to aptly be termed an excessive positive agency cost, two general conditions must hold. First, experts in the field must be able to identify the source of the agency costs clearly. Second, appropriately skilled individuals must be able to alleviate the problem within a reasonable time frame [Halpern, 1983]. When the excessive positive agency costs (EPAC) are eliminated or minimized, the cost savings will increase the expected future cash flows derived from the firm's net productive assets.

Acquisition of such a firm may be a positive net present value investment opportunity. The existence of

EPAC is not the only requisite, however. The present value is based on the risk adjusted expected future cost savings. In addition, the analysis must include the often substantial costs of locating, evaluating and eventually affecting the acquisition. Thus, all firms with EPAC do not represent positive net present value investments. Conceivably, the same firm may be a positive net present value investment to one acquiring firm and not to another.

This study will focus on acquisitions of firms with EPAC. The inconclusive and conflicting findings in prior literature motivates this research project. Empirical evidence will be examined to demonstrate and study this class of transactions. Variables of interest are consistent with EPAC (suggesting inadequate monitoring and/or inadequate managerial incentives).

CHAPTER II

LITERATURE REVIEW

Introduction

There is a profusion of literature in the area of business combinations and corporate acquisitions. Three main topics are addressed below. Studies examining the wealth effects from business combinations are reviewed briefly. A discussion of the findings of studies on the characteristics of acquired firms follows. The final section considers studies in agency theory.

Wealth Effects Studies

Empirical studies on the wealth transfer of corporate acquisitions are often inconclusive or yield conflicting results. Two examples worthy of note are the market response based on the method of acquisition and the impact of the estimation period [Jensen and Ruback, 1983]. In the case of unsuccessful mergers, the target stock price falls to, or below preannouncement levels after the cancellation of the transaction [Dodd and Ruback, 1977]. This seems to be incongruent with the fact that, for up to two years after a failed tender offer, the target stock price remains

inflated [Bradley, Desai and Kim, 1983]. In the tender offer case, it appears that the market estimates an excess positive expected future cash flow in anticipation of future activity in the acquisition market. It is unclear why such an expectation is not made in the case of the failed merger. Earlier studies have used event periods ranging from a two day window to a sixty day field around the public announcement of the acquisition [Jensen and Ruback, 1983]. The direction and nature of wealth effects, as evidenced by abnormal returns estimated over the event period, appear inconsistent among studies. Findings appear to be highly dependent on the size of the event period. For example, returns on targets of unsuccessful mergers are consistently positive when the event window is from two days to two months centered on the announcement date. However, when the event window encompasses the eventual cancellation, the results are statistically insignificant [Jensen and Ruback, 1983].

The conflicting and often insignificant results of prior studies suggests the need for a different research methodology or a refined research design. One factor that is apparent in the vast majority of earlier works in the use of nonhomogeneous samples. Since synergies derive from different sources in a random set of acquisitions, the distinctive economic reality may impact the empirical evidence differentially.

Statistical significance is demonstrated with an adequate test subsample size. When the event of interest is relatively rare, a large general random sample may be required to ensure an adequate number of test firms in the sample. Such a sample may involve prohibitively large data gathering costs. When a general random sample of acquired firms is used in a study, the test sample of a particular source of takeover synergy may be inadequate. The interpretation of results of earlier studies is exacerbated since the statistical insignificance may be an artifact of general random sampling rather than a reflection of the actual underlying interrelationships.

Thus, effective empirical examination of corporate acquisitions may be limited to an appropriate subpopulation of target firms. In one notable earlier study, statistically significant results were demonstrated for horizontal mergers challenged under antitrust legislation [Eckbo, 1983]. This suggests that studies employing selective sampling procedures may be worthwhile.

Characteristics of Acquired Firms

A number of studies have attempted to build empirical models to predict which of a group of firms is likely to be the target of a corporate acquisition. Most commonly, five categories of accounting data have served as independent variables. Leverage ratios, surrogates for the capital

structure of the firm, tend to provide the greatest explanatory power [Stevens, 1973]. Other, less significant, independent variables include measures of liquidity, profitability, activity and dividend payout [Belkaoui, 1978 and Rege, 1984]. Sometimes employed in the model development are net book assets, net assets market-to-book ratio, and industry code [Palepu, 1985].

Overall, the models generated by these studies yield unremarkable results. While the individual variable coefficients are significant, the overall predictive accuracy of the models is not substantially greater than chance. One possible cause for this is the use of publicly available data as independent variables. Assuming a semistrong efficient market, the models' attempt to predict takeover targets implies the existence of a measurable market imperfection. The authors above do not present the basis for this expected market inefficiency. On the contrary, it has been hypothesized that corporate takeovers may be a mechanism to improve market efficiency through reallocation of scarce resources and managerial talent within an industry [Manne, 1965; Gort, 1969; Benston, 1985]. Consequently, it is not surprising that accurate prediction models have not been developed using publicly available data.

Some prediction models have not been properly adjusted to compensate for sample biases. Choice-based sampling was

commonly used to identify the target sample. This technique contains data collection costs when the event of interest is relatively rare in the general population. The test sample is typically randomly drawn from the population of takeover targets during the period of interest. The resulting frequency of target firms in the estimation sample is much higher than in the general population of all firms. This technique raises several methodological issues.

The choice-based data collection of the target group violates the assumptions underlying many statistical models. When these assumptions are violated, the resulting parameter estimates are inconsistent and asymptotically biased. Such a model, later applied to a random prediction sample, tends to overclassify target firms. Adjustments can be made to the statistical models to adjust for the discrepancy between sample and population prior probabilities [Zmijewski, 1984]. Such adjustments, absent in earlier models, may preclude reliable interpretation of the research findings.

A related problem encountered in these studies is the failure to prudently evaluate the model's classificatory accuracy. The data used to generate the model should not be used to evaluate its predictive ability. As in the development of the model, during the assessment process, adjustments reflecting variations in sample and population

prior probabilities are required. The researcher must choose the basis for model evaluation without prejudice to success.

Based on relative frequencies in the general population, a naive prediction rule would classify all firms as nontargets. Reasonably, a statistical model is not even minimally successful unless it makes fewer classification errors than the naive rule. More sophisticated measures of classificatory success focus on maximizing the number of correct designations, conditional upon sample proportions [McKee, Bell and Boatsman, 1984]. Since these criteria emphasize different types of errors, the ranking of a group of models is dependent upon the definition of classificatory success employed.

Earlier studies failed to consider the relative cost of alternative misclassifications. The chosen criterion for classificatory success may require adjustment to reflect the relative significance of errors. Often, there are differential loss functions implicit in Type I versus Type II classificatory errors. When this is the case, an appropriate measure of model accuracy will incorporate the relative costs of misclassifications [Dopuch, Holthausen and Leftwich, 1987].

Agency Theory

The essence of agency theory is the study of the effects of the separation of ownership and direct control

of productive assets [Jensen and Meckling, 1976]. Both owners and managers allocate scarce resources based on their individual utility functions. The owners' expected utility may be a function of risk-adjusted expected future cash flows from stock ownership. Managers' expected utility is affected by expected future remuneration including perquisites, effort required and risk faced by both the individual and the firm. Differences in risk preferences, along with these other distinctions, may result in owners' and managers' unique utility functions.

For any given situation, owners' expected utility may be maximized by one intrafirm resource allocation and managers' may be maximized by a dissimilar allocation. Managers, having authority over the immediate action, implement the decision which maximizes their expected utility. The resulting loss in the owners' expected utility is termed agency costs. Some minimal level of positive agency costs is present in all firms with widely held stock. Higher levels of agency costs may be the result of poor decision making skills, inadequate research and poor identification of future trends or problems, excessive perquisite consumption, or suboptimal levels of managerial effort expended by managers.

In an effort to minimize agency costs, special contracts are written to compensate and evaluate managers [Baiman, 1983]. The manager and owner may have more

congruent preferences when at least a part of the managers' compensation is in the form of stock or stock options. Incentives to invest optimal effort are created by specifying performance evaluation measures and tying current/future compensation directly to those measures [Healy, 1983]. A cost-benefit analysis guides development and implementation of these special contracts.

Adequate enforcement of these contracts demands reliable monitoring of the managers' performance in the dynamic business environment. Faithful reporting and performance evaluation are demanded by managers and owners alike. External auditing is an important aspect of monitoring managers' behavior [Ng and Stoeckenius, 1980]. The audit committee serves a special function in resolving disputes between the firm's management and the external auditor. The goal is to ensure effective, unbiased monitoring of managers' behavior.

Relevant variables for empirical work in agency theory may be drawn from the compensation and auditing areas. Few attempts have been made to combine these agency variables with financial market variables [Mikkelson and Ruback, 1985]. This study will do just that in the special case of a class of acquired firms.

CHAPTER III

RESEARCH METHODOLOGY

Research Question

This study examines firms which may have excessive positive agency costs. Such a firm may be an attractive target for a corporate acquisition. These firms are expected to display firm-specific characteristics related to the uncontained agency costs. A group of similar firms drawn from the general population is expected to display these firm-specific characteristics much less frequently. The following hypothesis is the focus of this study.

- H_0 : The identified group of target firms does not exhibit characteristics consistent with excessive positive agency costs more frequently than the identified group of nontarget firms.
- H_a : The identified group of target firms does exhibit characteristics consistent with excessive positive agency costs more frequently than the identified group of nontarget firms.

Rejection of the null hypothesis would support the premise that the presence of excessive positive agency costs motivates an identifiable class of corporate acquisitions. Failure to reject the null hypothesis would

not support this explanation for corporate acquisitions. Appropriate selection of the test sample and identification of pertinent variables are crucial features of the research design. Misidentification of test firms or misspecification of variables may preclude demonstration of statistically significant relationships. Further discussion of these issues follows below.

Sample Selection

Test Sample Identification

Since EPAC reduce expected future cash flows, the stock of a firm with EPAC would be expected to exhibit substandard overall performance. Such a firm is called a poor performer (PP). A firm may be a PP for a variety of reasons, only one being the presence of EPAC. The research hypothesis tests whether the PP target firms have characteristics which are generally consistent with the presence of EPAC. Two samples of PP firms are needed to test the research hypothesis. One sample are ex post targets of corporate acquisitions and the other sample are firms which have not been targets during the test period.

Prior empirical studies have not provided clear guidelines for the identification of a PP firm which may have EPAC. Although some argue that market efficiency makes the extended viability of a firm with EPAC doubtful [Benston, 1985], the semistrong form does not preclude the

continued existence of a firm with EPAC. Market efficiency is a necessary but not sufficient condition to eliminate firms with moderate agency costs from the market.

Cost-benefit analysis underlies the rational decision process leading to market efficiency. The semistrong form concept encompasses some market frictions and inefficiencies. As discussed earlier, not all firms with EPAC are viable targets of a corporate acquisition. The firm will become a target only when the expected future cash flows exceed the cost of identification and correction of the firm's EPAC plus the basic acquisition cost to the acquiring firm. When this condition does not hold, the firm with EPAC may continue to function as an independent entity indefinitely or until the condition is met for consideration as a possible target firm.

Sample Filter Criterion

The methodological problem becomes empirical identification of PP firms. The population of target and nontarget firms must be stratified appropriately into nonPP and PP subpopulations. A sample filter will be used to make this distinction. A suitable sample filter criterion will allow the following hypothesis to be tested.

H_0 : The sample firm is a poor performer.

H_a : The sample firm is not a poor performer.

As information reaches the market suggesting the presence of EPAC, the efficient market will impute the risk-adjusted reduced expected future cash flows into the equilibrium stock price. The market will continue to make adjustments in the equilibrium stock price as further evidence confirms uncontained EPAC. Over time the stock price will suffer discrete permanent reductions relative to other risky assets. The information relating to EPAC may reach the market at random intervals from a variety of sources.

Thus, there is no identifiable event date for empirical estimation of abnormal returns. In addition, temporary fluctuations in stock price may be unrelated to long term EPAC. A sustained pattern of poor market performance provides ex post evidence of permanent downward revisions of the stock's expected future cash flows. The effects of temporary fluctuations in relative stock price may be mitigated by estimating abnormal returns across wide time intervals.

Cumulative average residual (CAR) provides a measure of long term market performance. A PP is a firm with substandard risk-adjusted expected future cash flows. This results in a reduced return on the PP stock and a substandard CAR. Since, over extended periods, the market portfolio of risky assets tends to earn a non-zero, positive return, it is possible that a PP may have a

negative, zero or even a small positive CAR during the estimation period.

The sample filter criterion is based on a sample standard CAR. The construction of the sample filter must embody the differential loss functions of Type I (alpha) and Type II (beta) sampling errors. A Type I error occurs if the filter criterion identifies a nonPP as a PP. A Type II error is the classification of a PP as a nonPP. The research hypothesis is offered only for the special class of PP firms. As discussed earlier, failure to properly identify the relevant sample may prevent a statistically significant demonstration of valid phenomenon. Thus, a Type I error is far more deleterious to the study's results than a Type II misclassification.

The sample filter criterion must involve a very low alpha error. A somewhat larger beta error is acceptable. The firms with CARs in the bottom quartile of the sample are here operationally defined as PP. The PP target firms will be examined as a test sample. The PP in the nontarget group will be examined as a comparison sample.

Variable Definition

Executive Compensation

Managerial compensation contracts are written to motivate executive performance. They offer incentives for optimal use of managerial effort and talent. These same

contracts provide disincentives for undesirable behaviors which may be related to EPAC. These compensation plans often tie current period remuneration to some measure of firm performance.

There are a variety of measures of firm performance which may be assessed across differing time periods. The definition of firm performance and the measurement time horizon have substantial impact on the manager's decision processes and behavior. The manager maximizes his expected utility when the performance criterion is at an optimal level. Agency costs may be controlled or reduced when the performance criterion leads to congruence of the manager's and stockholders' utility functions.

In the aggregate, the stockholders' investment holding period may be viewed as indefinite. The long term viability of the firm is the most serious concern. A manager's relatively briefer involvement with the firm may motivate him to allocate firm resources such that the firm's short term profitability is maximized. Such a decision may hinder the firm's long range strategic position. This discrepancy in time frame emphasized is a source of agency costs. A compensation contract may minimize these costs by tying the manager's current period remuneration to some measure of long term firm performance. Such a contract is referred to as a long term compensation plan.

There is significant diversity in the choice of performance criterion among long term compensation plans. As a measure designed to contain agency costs, perhaps the most effective contracts use stock price as a measure of long term firm performance. Of obvious interest to stockholders, under the long term compensation plan, stock price serves as a basis for determining the manager's current period remuneration. The manager's decisions to allocate firm resources are made to maximize his personal wealth, and the wealth of the stockholder is maximized simultaneously.

For this study, a long term compensation plan is defined as any stock option, stock bonus or combination plan. Theory suggests that firms with without long term compensation packages are more likely to incur EPAC. Thus, PP firms with long term compensation plans are less likely to have EPAC. Similarly, PP firms without long term compensation packages are more likely to have EPAC. The null hypothesis of the basic research question is rejected if PP targets have long term executive compensation plans less frequently than PP nontargets.

The relationship between executive compensation and firm profitability provides another variable of interest. Executives are charged with profitable management of the firm assets. One measure of their success is return on the common stock. Overall, PP firms, as defined here, have

substandard return on common stock during the test period. When firm assets are consistently earning a relatively low return, control of agency costs implies that current period executive compensation should reflect the relatively unfruitful management. In a PP without EPAC, average current period executive compensation is expected to be below the industry average. Empirical support for the basic research question will be found if the average current period executive compensation as a percentage of industry average tends to be lower in the nontarget group than in the group of target firms.

The Auditing Function

Control of agency costs requires appropriate monitoring of the executive's behavior. The audit function is serves as an external monitor of performance. Knowledge that his work will be audited may motivate the executive to optimal effort levels. At least, it may provide a deterrent to negligent or willful misallocation of firm resources. Variables which suggest the possibility of a weakness in the audit function are consistent with the possibility of EPAC. Three such variables have been identified.

One of the functions of the board of directors is to oversee the relationship between the external auditor and the firm's employees. The board is responsible for the appointment of the external auditor, and the review of the

auditor's work. The board must handle the resolution of any auditor-management disputes. These specialized duties are assigned to the audit committee, a select subgroup of the board of directors.

In an agency theory context, the audit committee oversees the audit-monitoring function for the stockholders. When an audit committee has not been appointed, the board may not view that task with the appropriate importance. A PP with EPAC may have a poor monitoring system and no audit committee.

The importance of the audit committee is fairly well recognized. The New York Stock Exchange and the American Stock Exchange require that listees have a specifically identified audit committee. The recommendations of the Report of the National Commission on Fraudulent Financial Reporting [1987] reiterate the importance of the audit committee in monitoring employee behavior. However, firms listed on the Over-the-Counter Exchange (OTC) are not required to appoint a specific audit committee on the board of directors.

This study will examine the empirical relationship between the existence of an audit committee and the presence of EPAC. Therefore, both the target and nontarget samples are drawn from the population of OTC firms. The research hypothesis is supported if the target sample has specially designated audit committees less frequency than

the nontarget sample.

Beyond the mere existence of the audit committee, its composition may impact its effectiveness in controlling EPAC. The Report of the National Commission on Fraudulent Financial Reporting [1987, p. 41] states that a specific audit committee is a necessary but not sufficient provision to properly monitor the employees' behavior. There is a strong recommendation that only independent, outside directors serve on the audit committee. The report emphasizes the independence of each member as an important component of the effectiveness of the audit committee in overseeing the audit/monitoring function.

It can be hypothesized that the audit committees of PPs with EPAC will have a low percentage of outside directors. This study defines an outside director as one who is so noted on the firm's annual report. The research hypothesis will be empirically supported the audit committee of the target firms have a lower percentage of outside directors than those of the nontarget sample.

A third variable of interest in the audit area relates to the tenure of the external auditor. The audit committee is charged with the responsibility of reappointment, or discharge of the external auditor. The external auditor may fail to be reappointed for a variety of reasons. If the firm's management is incurring EPAC, they may encourage the discharge of an auditor who too closely inspects

discretionary resource allocations. Frequent external auditor changes suggest the possibility that detection of EPAC may be hampered. The research hypothesis is supported if target firms exhibit more frequent external auditor changes during the test period than nontarget firms.

To summarize, five variables have been identified. A group of firms which may have EPAC is expected to show the following characteristics: relatively few long term executive compensation packages, above industry average current period executive compensation, relatively infrequent audit committees with a relatively low percentage of outside directors and relatively frequent changes of external auditor. The research hypothesis will be supported if the target group can be distinguished from the nontarget group of firms on the basis of these characteristics.

CHAPTER IV

DATA AND STATISTICAL ANALYSIS

Sample Selection

As discussed above, all sample firms were drawn from those traded in the Over-the-Counter (OTC) market. The sample of target firms was drawn from the record of acquisition activity in the period January 1985 - December 1986 as listed in Mergers and Acquisitions. A firm is defined as a target if, during the period, another firm purchased sufficient voting stock to constitute an interest in excess of twenty percent, or one designated as a controlling interest. Since prior studies suggest that the returns on the stock of target and/or acquiring firms may be affected by activity in the acquisition market, estimation of abnormal returns may be confounded for a firm which was both a target and an acquiring firm during the period. Therefore, any firm which had additional reported activity in the corporate acquisition market during the period January 1978 - December 1986 was eliminated from the sample. A total of 353 target firms were identified.

The population of nontarget firms consisted of all of the OTC firms on the Compustat Research files with complete

data for the period January 1978 - December 1986. Firms which had activity in the corporate acquisition market reported in Mergers and Acquisitions during the period were dropped from further consideration. A group of 274 nontarget comparison firms was identified.

Sample Research Design

The relationship between the test sample and the comparison sample has significant bearing on the overall research design. When two independent random samples are taken from two different populations, statistical analysis allows inference about the differences between the two populations. Although a related samples design may produce a smaller error term and greater precision may be achieved, this study employs an independent samples design [Roscoe, 1975]. No attempt is made to match the PP-target firms and the PP-nontarget firms on any specific criterion. A discussion of the rationale for this sample research design choice follows.

Firm Size

There is evidence to suggest that acquired firms tend to be relatively smaller than nonacquired firms in the same industry [Palepu, 1985]. Some prior research suggests that firm size may be a good discriminator between the target and nontarget samples. One of the explanations offered for

this phenomenon relates to the cost of funding the acquisition cost [Stevens, 1973]. When the acquiring firm requires external funding of all or part of the acquisition cost, these financing costs must be included in the evaluation of the investment opportunity. These added costs decrease the likelihood that the proposed acquisition will represent a positive net present value project. As the size of a prospective target firm increases, the acquiring firm may require a greater amount of external funding. These funds may be available only at a rising marginal cost. As these costs increase, the net present value of the proposed acquisition drops and may become negative. Following this line of reasoning, it is not surprising to observe that acquired firms tend to be smaller than acquiring firms.

Firm size may serve as a surrogate for another of the independent variables of interest here. The extent and/or quality of the audit function may be affected by firm size. Expert internal auditors may find larger firms provide better career opportunities. In addition, development and maintenance of a sophisticated internal auditing staff requires utilizes funds that smaller firms may lack. Even as small firms may have difficulty attracting managers with the highest level of expertise, a similar problem may arise in obtaining experts to serve on the audit committee of the board of directors. Thus, there may be some inverse

relationship between firm size and the monitoring value of the audit function. As these effects serve to mitigate the problems leading to excessive positive agency costs, firm size may be a proxy for the audit variables of interest in this study.

To summarize, target firms are observed to be smaller than the acquiring firms. This size factor is likely to serve as a proxy for financing costs, managerially related agency costs, and the audit function. Research designs which utilize firm size as a criterion variable are likely to capture these effects as well as absolute value of the asset base. Since this study attempts to utilize independent variables related to the efficiency and extent of the audit function, use of firm size as a matching criterion variable would prohibit testing of the basic research hypothesis.

Nonetheless, firm size may contain significant differential information for the particular firms in this study. An examination of the empirical firm size data was warranted. Total assets serves as a measure of size for all sample firms. When the samples contain a nearly equal number of observations, the t-test detects differences between sample means without being sensitive to nonnormality of sample distributions and nonhomogeneity of sample variances. Therefore, a t-test was performed to ensure that failure to include firm size in the variable

set does not result in the omission of significant information content.

Thirty-one target firms and thirty-seven nontarget firms comprised the final samples in this study. The mean size was computed for the final target and the nontarget samples as \$1,867,500 and \$2,109,700 respectively. The computed t-statistic of 1.78, with sixty-six degrees of freedom, was compared with the critical value of 2.00. The test fails to reject the null hypothesis at .05 level of significance. This implies that firm size can be omitted without significantly biasing the model.

Industry Classification

It has been observed that, within any small finite time span, corporate acquisition activity tends to be concentrated in one or two industry classes [Jensen, 1984]. An example of the theory of economic disturbance provides insight into this phenomenon [Gort, 1969]. An interesting case occurs when secondary product demand increases beyond the current short run industry supply. The higher profitability that tends to result from the new equilibrium will attract new firms to the industry. However, if the industry has few barriers to entry, new firms may emerge quickly. These new firms increase the demand for managerial talent. The demand may exceed the short run supply of qualified, experienced individuals. New,

developing firms are the ones most likely to be forced to hire managers with only marginal expertise.

As the industry product supply and demand reach a long term equilibrium, the rate of return to firms in the industry falls to a new equilibrium. The higher rates of return earned during the period of industry expansion may have mitigated the effects of inefficiencies and relatively inexperienced managers. These same inefficiencies may become EPAC in a stable, slow-growth industry. Firms in this situation may become attractive targets for intraindustry acquisitions. Managers of the acquiring firm already have specialized expertise which may facilitate elimination of EPAC. Thus, within any finite period of time, industry classification and stability may serve as a proxy for variables indicating managerial inefficiencies.

An examination of the industry classifications of the final thirty-one target and thirty-seven nontarget firms was made. This provides insight into any discriminatory power which may be lost due to the omission of industry classification from the model. The industry proportions for the final target and nontarget samples are respectively: financial institutions and insurance, 38% and 22%; petroleum drilling and refining, 29% and 35%; retail sales, 16% and 19%; manufacturing, 13% and 22%; other, 3% and 2%. The data indicates that neither sample is dominated by a single industry. Significant discriminatory

power is not likely to be lost by the omission of industry classification from the variable set.

Independent Samples Design

Empirical studies employing proxy variables may succeed in distinguishing between two different populations. However, little insight or understanding is gained into the underlying phenomenon when the criterion variable proxies several specific characteristics at once. A sample research design which matches the test firms and the comparison firms on firm size and/or industry classification may match, in essence, on the underlying independent variables of this study. The research question itself would become moot in this application.

An independent samples research design is used here with no attempt to match the target and nontarget firms on any characteristic. Firms which meet all criteria for target or nontarget groups are subjected to the PP test using the sample filter criterion described above. PP-target firms and PP-nontarget firms comprise the final samples for the study.

Identification of Poor Performers

Identification Time Period

Evidence in earlier studies suggests that a firm may be identified as a potential target up to two years before any

formal negotiations commence [Bradley, Desai and Kim, 1983]. Generally, firms in this potential target group are expected to earn positive abnormal returns if and when the acquisition is affected. The market discounts these expected positive abnormal returns into the pre-negotiation stock price. Thus, it is possible that such firms will begin yielding small positive abnormal returns as early as two years before the acquisition.

It may be impossible to identify PP firms using the sample filter criterion during this two year period. The small positive abnormal returns earned in anticipation of acquisition may offset negative abnormal returns due to substandard firm performance. Thus, a PP firm which the market considers to be a potential target of a future acquisition may fail to meet the PP test based on the sample filter criterion. The two year period prior to takeover was eliminated from the PP identification analysis in order to control for this bias. To avoid potential temporal effects, a similar two year period is not considered as the comparison group is stratified into PP and non-PP firms.

Sample Filter Criterion

A market model test provided a criterion used as a sample filter. Monthly stock price data was collected for the period January 1978 - December 1982. Data for target

firms was gathered from the Interactive Data Corporation Stock Guide. The Compustat Research File provided data for nontarget firms. Complete data sets were collected for 207 of the target firms. 221 nontarget firms had the required number of observations.

A two parameter market model was estimated for the period January 1978 -December 1980 for each firm. This eliminates the two year period prior to acquisition for the target firms. Data for the nontarget firms was collected for the same period. Employing the Standard and Poor's 500 as a proxy for the market portfolio, monthly abnormal returns were computed for the period January 1981 - December 1982. These abnormal returns were used to compute a twenty four month cumulative abnormal residual (CAR) for each firm. The CAR captures the overall unexpected market performance of the stock for the twenty four month period. The CAR is relatively insensitive to minor temporal deviations from estimated market relationships.

The firms in the quartile with the most negative CAR values are designated as PP. However, it is possible that a transient change in stock price could produce a sufficiently large abnormal return to dominate the other data values. In this case, the CAR would misrepresent the actual long term market performance. To control for this possibility, an outliers test was performed. A visual examination of the stream of monthly abnormal returns

identified any outliers. An observed outlier was removed from the data set and the CAR was recomputed based on the remaining twenty three observations. The twenty three month CAR was used to reclassify the firm on the basis of the sample filter criterion. In order to achieve a small alpha error, if the twenty three month CAR changed a firm's classification, it was dropped from the sample.

The cutoff for the quartile of the most negative CAR in the target group was $-.009$. The CAR for fifty two firms fell below this value and were classified as PP. When the outliers test was performed, six firms were classified as non-PP on the basis of the twenty three month CAR. After these six firms had been deleted from the sample, a total of forty six firms remained for further analysis.

The CAR cutoff for the bottom quartile in the comparison group was $+0.011$. As defined earlier, a PP is expected to have a nonpositive CAR. Therefore, the CAR cutoff was set at 0.00 . This resulted in the elimination of three firms from the sample. Two firms were dropped from further consideration during the outliers test. The final sample consisted of forty nine PP nontarget firms.

Subsample Randomization

When a firm is first identified as a possible target of a corporate acquisition, the values of the variables of interest may be affected. In addition, economy wide events

may have a differential temporal influence over the variable estimation period, January 1981 - December 1982. Should these biases exist, observed differences between the target and nontarget samples may be artifacts of temporal effects. To minimize the probability of this problem occurring, both calendar years of the variable estimation period were represented equitably in both samples.

A subsample randomization procedure achieves this goal. Both the target and the nontarget samples were bisected, with each firm randomly assigned to one of the two subgroups, A and B. Annualized variables for firms in subgroup A were measured for the calendar (reporting) year 1981. Calendar (reporting) year 1982 was the measurement period for firms in subgroup B.

Variable Estimation

Data for each firm was collected for the appropriate subgroup time period. Part III of the Form 10-K provided evidence of the presence of a long term compensation plan for middle or upper executives. Any stock option, stock bonus or other such plan qualifies as a long term compensation plan. The same section of the Form 10-K revealed cash payments to executives for salaries and fees. Figures for industry averages of annual cash compensation were drawn from The National Income and Product Accounts of the United States, 1929 - 1982, published by the U.S.

Bureau of Economic Analysis.

The firm's annual report indicated the existence of an audit committee, and the number of audit committee members noted as outside directors. The number of external auditor changes was measured over the three year period 1979 - 1981 or 1980 - 1982 respectively. An 8-K Form must be filed with the SEC, when the board of directors elects not to reengage the external auditor. Summaries of 8-K form filings with the SEC were used to gather data on external auditor changes.

After the data collection procedures outlined above, twelve of the PP nontarget firms and fifteen of the target PP firms had incomplete data. Thus, thirty-one target PP firms provided the sample for testing of the basic research hypothesis. Complete data was available for thirty-seven PP nontarget firms. Table I provides a reconciliation of the original sample collected and the final samples used in the statistical model.

Probit Analysis

Basic Model

A multivariate probit model was used to analyze the relationship between the two samples of PP firms and the identified independent variables. A probit model is appropriate since the dependent variable, sample membership, is dichotomous. The dependent variable is

predicted on the basis of the set of independent variables, X_1, X_2, \dots, X_j . The probit procedure estimates a linear relationship between the independent variables, and the random, normally distributed dependent variable, Z_i . Parameter estimates computed using a maximum-likelihood technique are consistent, asymptotically efficient, and asymptotically normally distributed. A t statistic can be used to test whether the parameter estimates are significantly different than zero. The basic probit formulation used in this study appears below.

$$Z_i = B_0 + B_1X_{1i} + B_2X_{2i} + B_3X_{3i} + B_4X_{4i} + B_5X_{5i}$$

Z_i indicates whether the firm is in the target of the comparison sample. X_{1i} denotes the presence of a long term executive compensation plan. X_{2i} represents the firm's cash compensation to executive as a percentage of the industry average. X_{3i} is used to code the presence of an audit committee on the board of directors and X_{4i} to represent the percentage of outside directors on the audit committee. X_{5i} is the number of changes the firm's board of directors made in the external auditor during the three year test period.

Jackknife Procedure

Generally, to assess the classificatory success of a model such as the one in this study, a random holdout

sample is formed and the model is estimated using the remaining data. Data from the holdout group is evaluated using the estimated model parameters. The resulting predicted classification of the holdout observations can be compared to the actual group membership. The frequency of correct classifications is the basis for evaluation of the model's usefulness.

With the limited number of observations in each sample group, it is not possible to form a reasonably sized holdout sample. An alternative procedure, called jackknifing, allowed both model estimation and evaluation of its classificatory success.

The jackknife procedure is an iterative approach to model estimation/evaluation. In the initial phase, a single observation is designated as the holdout sample. The model is estimated using the remaining observations, and the resulting parameters are used to predict the classification of the holdout observation. The predicted classification is compared to the actual group membership. A correct classification, if it occurs, is recorded. In the second iteration, the initial holdout observation is returned to the data set and a different observation is designated as a holdout sample. The process as described above continues throughout the entire sample. The result is a predicted classification, either correct or incorrect, for each data item in the sample. This provides a

sufficient number of model predictions to compute a statistical measure of the classificatory success of the model.

Classificatory Success of the Model

Several alternative measures of classificatory success are available [McKee, Bell and Boatsman, 1984]. The proportional choice criterion is used to measure the predictive accuracy of the model developed in this study. This statistic is the probability that the correct classifications occurred observations by chance. The computation appears below.

$$C_{\text{pro}} = k^2 + (1 - k)^2$$

The sample proportion of firms in the target group is denoted as k . The sample proportion is the conditional probability of correct classification into the target group. k^2 is the product of the conditional probabilities. The sample proportion of comparison firms is noted as $(1 - k)$. A similar analysis shows that $(1 - k)^2$ is the product of conditional probabilities of correct assignment into the comparison group. The sum of the two products represents the probability of correct classifications based on chance assignment to groups.

C_m , a measure of the actual classificatory success of the model was made by substituting k' for k and $(1 - k')$

for $(1 - k)$ above. Here k' and $(1 - k')$ represent the proportion of correct model classifications made into the target and nontarget groups respectively. A direct comparison of C_m and C_{pro} is appropriate since both derive from actual sample proportions.

A Z transformation allowed hypothesis testing on the classificatory success of the model. This test determines whether the model's predictive accuracy is significantly better than classifications made by chance. The test statistic appears below.

$$Z' = \frac{k' - C_m}{\{ [C_m(1 - C_m)] * (1/N) \}^{.5}}$$

N represents the total sample size. k' and C_m are as before. The computed statistic Z' can be compared to the critical Z value from a standard normal table at the desired level of significance. If Z' is greater than the critical Z, the model predicts better than chance at the appropriate level of significance.

CHAPTER V

RESULTS AND CONCLUSIONS

Results

The entire sample consisting of thirty-one test firms and thirty-seven comparison firms was used in the statistical analysis as described above. The results of the multivariate probit model appear in Table II. All of the parameter estimates have the signs predicted by the theory.

T-statistics were computed to permit hypothesis testing for each parameter. The null hypothesis states that the parameter is not significantly greater than (less than) zero. Critical values were compared to the computed t-statistics reported in Table II. The null hypothesis was rejected at the five percent level of significance for two of the parameters. The related variables are the presence of an audit committee and changes in the external auditor. The null hypothesis was rejected at the ten percent level of significance for the constant term. Results indicate a failure to reject the null hypothesis for all other parameters in the model.

The classificatory success of the model was assessed

using the Z transformation described above. The chance probability of correct assignment, C_{pro} , was computed as .504. This represents the success rate of a model which is based on chance assignment of the observations. Based on the jackknife technique, the model correctly classified forty-eight or 70.6% of the observations. 38.7% of the targets were misclassified and 16.2% of the comparison firms were misclassified. Using the formula given in the previous section, the Z value was computed as 3.33. This value is significant at the .01 level.

The sampling procedure used in the study may affect the model specification. Choice-based sampling is used to extract a sufficient sample size when the dependent variable of interest is relatively rare in the general population. The resulting research sample proportion may be significantly different than the population frequency. Analytical methods must be adjusted or prediction error rates may be understated and parameter estimates may be biased [Zmijewski, 1984].

Corporate takeovers are relatively rare in the general population of firms, but the actual frequency in the special population of poor performers is uncertain. Casual observation in the financial institution industry suggests that frequency of acquisitions of PP may be greater than that in the general economy. However, if the sample proportion of 46% exceeds the actual rate for PP, the

parameter estimates reported above may be biased and the classificatory success of the model may be overstated.

A second model was estimated to test for the presence of bias. The relative frequency of the comparison firms was increased by 300% in a weighted probit model. The new proportion of test firms in the sample is 21%. This may be more representative of actual poor performer population frequencies.

The results from the weighted multivariate probit model appear in Table III. All of the parameter estimates have the same predicted signs as the original model. These signs are consistent with the relationships derived from agency theory.

T-statistics were computed to permit hypothesis testing for each parameter. The null hypothesis states that the parameter is not significantly greater than (less than) zero. Critical values were compared to the computed t-statistics reported in Table III. The null hypothesis was rejected at the fifteen percent level of significance for the parameter estimates for the constant term, the audit committee and the auditor changes.

The weighted multivariate probit model correctly classified 80.7% of all firms. However, only 29% of the target firms were properly categorized. 5.4% of the nontarget firms were classified as targets and 48.4% of the target firms were misclassified by the weighted model.

The weighted model incorporated 145 observations (31 target firms plus 37 comparison firms each with a weighting factor of three). These proportions were used to compute the chance probability of correct assignment, C_{pro} for the weighted probit model. C_{pro} was .664. Using the Z transformation, the overall classificatory success of the weighted model was assessed. The Z value of 3.65 is significant at the .01 level.

Conclusions

Based on the statistical testing using the Z transformation, the model developed in this study does perform significantly better than random assignment of the observations. This lends empirical support to the hypothesis that a certain class of target firms exhibit characteristics consistent with the presence of excessive positive agency costs.

The two independent variables, audit committee and changes in external auditor, appear to have significant discriminatory power in the model. In the study sample, PP-targets tended to have an audit committee less frequently than the PP-nontargets. This is consistent with the view that a specially appointed audit committee provides extra monitoring that aids in controlling excessive positive agency costs. The significance of the changes in external auditor variable is consistent with the

hypothesis that dismissal of the auditor may result from disagreements over management's use of alternative discretionary accounting procedures to camouflage excessive positive agency costs in the financial statements.

Although the number of outside directors was not significant, this may be due to the dichotomous coding of the audit committee variable. Substantial collinearity between the audit committee and the outside director variables may have dominated any marginal information contained in the director variable. Thus, the formulation here may not provide conclusive insight into the importance of the independent director on the audit committee.

The results of the weighted probit analysis suggest the parameter estimates in the original model may be biased. However, the weighted model still achieves a classificatory success rate significantly greater than chance. The same variables seem to contribute discriminatory power to the model.

The results of this study are consistent with the report of the National Commission on Fraudulent Financial Reporting (Treadway Commission). The Commission recommended that the SEC require all firms to have audit committees comprised of independent directors. A finer discrimination of the reasons for auditor dismissal might provide further insight into the significance of such a change. This is not currently possible since the SEC Form

8-K's provide little real information concerning the underlying reason for the auditor change. The Treadway Commission exhorted the SEC to require additional disclosure of the nature of the disagreements with the previous auditor and the preengagement discussions with the new auditor. The SEC responded with recently implemented additional disclosure requirements. With further refinements in both theory and variable definition, future studies of this type may provide guidance for regulatory agencies in requiring additional disclosures or provide support for recommendations for changes in corporate organizational structure.

Implications for Future Research

This study suggests that further empirical work in the area of agency theory may be fruitful. Refinements in both theory and variable definitions may yield models with superior discriminatory power. Further studies may provide guidance for regulatory agencies in mandating additional disclosures. The issue of auditor changes continues to be of interest to the auditing profession. Additional empirical investigations may offer useful insights into the impact of auditor changes.

REFERENCES

- Baiman, Stanley, "Agency Research in Managerial Accounting: A Survey," Journal of Accounting Literature (Vol. I, 1982), pp. 154-213.
- Belkaoui, Ahmed, "Financial Ratios as Predictors of Canadian Takeovers," Journal of Business, Finance and Accounting (Vol.5, No. 1, 1978), pp. 93-107.
- Benston, George, "The Self-Serving Management Hypothesis, Some Evidence," Journal of Accounting and Economics (Vol 7, 1985), pp. 67-84.
- Bradley, Michael, Anand Desai and E. Han Kim, "The Rationale Behind Interfirm Tender Offers, Information or Synergy?," Journal of Financial Economics (June 1983), pp. 183-206.
- Dodd, Peter and Richard Ruback, "Tender Offers and Stockholder Returns: An Empirical Analysis," Journal of Financial Economics (Vol. 5, 1977), pp. 351-374.
- Dopuch, Nicholas, Robert W. Holthausen and Richard W. Leftwich, "Predicting Audit Qualifications with Financial and Market Variables," The Accounting Review (July 1987), pp. 431-454.
- Eckbo, B. Espen, "Horizontal Mergers, Collusion and Stockholder Wealth," Journal of Financial Economics (Vol. 11, 1983), pp. 241-273.
- Gort, Michael, "An Economic Disturbance Theory of Mergers," Quarterly Journal of Economics (Vol. 83, 1969), pp. 164-184.
- Halpern, Paul, "Corporate Acquisitions: A Theory of Special Cases? A Review of Event Studies Applied to Acquisitions," The Journal of Finance, (May 1983), pp. 297-318.
- Healy, Paul, "The Effect of Bonus Schemes on Accounting Decisions," Journal of Accounting and Economics (April 1985), pp. 85-107.
- Jensen, Michael C., "Takeovers: Folklore and Science," Harvard Business Review (Nov.- Dec. 1984), pp. 109-121.

- _____ and William H. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," Journal of Financial Economics (October 1976), pp. 305-360.
- _____ and Richard S. Ruback, "The Market for Corporate Control, The Scientific Evidence," Journal of Financial Economics (June 1983) pp. 5-50.
- Manne, Henry G., "Mergers and the Market for Corporate Control," Journal of Political Economy (Vol. 73, 1965), pp. 110-120.
- Mikkelson, Wayne H. and Richard S. Ruback, "Takeovers and Managerial Compensation: A Discussion," Journal of Accounting and Economics (April 1985), pp. 233-238.
- McKee, A. James, Timothy B. Bell and James R. Boatsman, "Management Preferences Over Accounting Standards: A Replication and Additional Tests," The Accounting Review (October 1984), pp. 647-659.
- National Commission on Fraudulent Financial Reporting, Report of the National Commission on Fraudulent Financial Reporting, (October 1987).
- Ng, and Stoeckenius, "Auditing: Incentives and Truthful Reporting," Journal of Accounting Research (Supplement, 1980), pp. 1-24.
- Palepu, Krishna, "Predicting Takeover Targets: A Methodological and Empirical Analysis," Journal of Accounting and Economics (March 1986), pp. 3-35.
- Palepu, Krishna, "The Determinants of Acquisition Likelihood," Working Paper, Harvard Business School (1985).
- Rege, Udayan P., "Accounting Ratios to Locate Take-over Targets," Journal of Business, Finance and Accounting (Autumn 1984), pp. 301-311.
- Roscoe, John T., Fundamental Research Statistics for the Behavioral Sciences, (Holt, Rinehart and Winston, Inc., 1975).
- Stevens, Donald L., "Financial Characteristics of Merged Firms: A Multivariate Analysis," Journal of Financial and Quantitative Analysis (March 1973), pp. 149-158.

Zmijewski, Mark E., "Methodological Issues Related to the Estimation of Financial Distress Prediction Models," Journal of Accounting Research (Supplement 1984), pp. 59-83.

APPENDIX

TABLE I
 RECONCILIATION OF ORIGINAL DATA
 AND SAMPLE USED IN PROBIT MODEL

	TEST (TARGET) FIRMS	COMPARISON FIRMS
FIRMS ORIGINALLY IDENTIFIED	353	274
FIRMS ELIMINATED DUE TO:		
INCOMPLETE MARKET DATA	146	53
23 MONTH CAR ABOVE THE PP CUTOFF VALUE	155	170
OUTLIERS TEST CHANGED FIRM'S PP CLASSIFICATION	6	2
INCOMPLETE AGENCY VARIABLE DATA	15	12
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SAMPLE FOR PROBIT MODEL	31	37

TABLE II
RESULTS OF PROBIT ANALYSIS

Dependent Variable: 0 = Test Firm 1 = Comparison Firm

Variable	Parameter Estimate	Standard Error	T - Statistic	
Constant	2.386	1.709	1.396	**
Long Term Comp.	0.051	0.318	0.161	
Salaries	- 1.598	1.210	1.320	
Audit Committee	- 0.972	0.497	1.954	*
Outside Director	- 0.472	2.652	0.178	
Auditor Change	- 0.616	0.322	1.915	*

* significant at alpha level of 0.05 in a one tail test
** significant at alpha level of 0.10 in a one tail test

TABLE III
RESULTS OF WEIGHTED PROBIT ANALYSIS

Dependent Variable: 0 = Test Firm 1 = Comparison Firm

Variable	Parameter Estimate	Standard Error	T - Statistic	
Constant	4.015	1.515	2.650	*
Long Term Comp.	0.750	0.257	2.918	*
Salaries	- 1.954	1.029	1.899	
Audit Committee	- 1.063	0.428	2.484	*
Outside Director	- 0.932	2.334	0.399	
Auditor Change	- 0.602	0.268	2.315	*

* significant at an alpha level of 0.15 in a one tail test

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