Appendix: The Disciplinary Motive for Takeovers— A Review of the Empirical Evidence

Anup Agrawal
Culverhouse College of Business
University of Alabama
Tuscaloosa, AL 35487-0224

(205) 348-8970
aagrawal@cba.ua.edu
http://www.cba.ua.edu/personnel/xeaa.html

Jeffrey F. Jaffe
Department of Finance
The Wharton School
University of Pennsylvania
Philadelphia, PA 19104

(215) 898-5615
jaffe@wharton.upenn.edu

Latest revision: September 2002

Appendix: The Disciplinary Motive for Takeovers— A Review of the Empirical Evidence

Abstract

This Appendix reviews the literature on the disciplinary motive for takeovers, also known as the inefficient management hypothesis. A number of papers have examined either stock return performance, operating performance or q-ratios prior to acquisition, both for target firms as a whole and for specific sub-samples that are likely to be disciplinary. Other research has attempted to predict the probability of takeover from past performance. Overall, we do not find much empirical evidence in support of the disciplinary motive for takeovers.

Appendix: The Disciplinary Motive for Takeovers— A Review of the Empirical Evidence

This Appendix reviews the literature on the disciplinary motive for takeovers, also known as the inefficient management hypothesis. Section I discusses the evidence from event studies and section II reviews other types of evidence. A synthesis and interpretation of this evidence is provided in Agrawal and Jaffe (2003).

I. Event study evidence

Academics have discussed the inefficient management hypothesis for many years. For example, Samuelson (1970, p. 505) states "take-overs, like bankruptcy, represent one of Nature's methods of eliminating deadwood in the struggle for survival. A more open and more efficiently responsive corporate society can result." Other conceptual treatments of the hypothesis from this time period can be found in Manne (1965), Solow (1967), and Williamson (1964).

The label 'inefficient management hypothesis' appears to originate in the influential paper by Mandelker (1974), which examines 252 mergers between New York Stock Exchange (NYSE) acquirers and NYSE targets that were completed during the period from November 1941 to August 1962. He measures stock return performance relative to the empirical security market line estimated by Fama and MacBeth (1973). His Table 2 shows cumulative average abnormal return (CAAR) of -3% for targets over months (-40, -9) relative to the month of merger completion.[1] This appears to be an economically insignificant number. The t-tests are not reported, so that statistical significance can not be assessed. Thus, his results do not contradict the null hypothesis of zero abnormal returns prior to mergers.

Ellert (1976) focuses on mergers that faced antitrust challenge, but also examines, in passing, the performance of merging firms in general. His sample for this latter analysis consists of

[1]Since mergers are typically announced several months before they are completed, and the price run-up begins about two months before the announcement, the residuals over the months immediately preceding the merger are likely to reflect the announcement effect of the merger. Mandelker treats the eight month period before merger completion as related to the announcement.

311 acquisitions of at least $10 million from 1950 to 1970. The CAAR (calculated using the two-factor market model) of the target firms over months (-100, -8) around merger completion is -11.7%. However, no t-values are reported over this interval, so one can not determine whether these results reject the null hypothesis of zero abnormal returns.

Smiley (1976) examines 95 tender offers between 1956 and 1970. Using a 3-factor market model (beta, zero-beta asset and industry index), he finds that the target's CAAR is a statistically significant -55.6% over months (-120, -1) relative to the announcement date. These results do not support the null hypothesis of zero abnormal returns.

Dodd and Ruback (1977) examine targets in 136 successful tender offers during 1958-76. Their Table 3 shows statistically insignificant abnormal returns (computed using the market model) over months (-60, -13) relative to the month of the tender offer announcement. Abnormal returns are actually positive over months (-12, -3). Thus, their results do not reject the null hypothesis of normal performance.

Langetieg (1978) examines return performance in the 72 months before merger completion for a sample of 149 mergers between 1929 and 1969 selected from the Center for Research in Security Prices (CRSP) data files. He simultaneously adjusts the stock return performance by (1) relative risk (β), (2) an industry index and (3) a control firm in the acquired firm's 2-digit SIC industry. After this three-factor adjustment, Langetieg finds that the acquired firm's pre-merger performance is not significantly different from zero. He states (p. 379), "On closer examination, we must discount the inefficient management hypothesis since the non-merging control firm also exhibited negative excess returns in the time interval (-72, -19). Furthermore, the 'paired-difference' test shows excess returns insignificantly different from zero in two of the three tests. We can infer that some external influence has affected both the merging firms and the control firms in a similar way, but we can not infer that the influence is managerial inefficiency, nor can we infer that the negative excess return behavior is attributable to the merger."

Asquith and Kim (1982) examine 21 companies that engaged in a complete merger between January 1, 1960 and December 31, 1978. After adjusting for beta, the authors find a CAAR of –0.0289 (our calculation) over months (–12, –3) relative to the month of merger announcement. A test statistic is not provided for this return.

Asquith (1983) examines 211 firms acquired by merger over the period from 1962 to 1976. After adjusting for beta using the daily CRSP excess return file, Asquith finds that the CAAR on the stocks of these firms is -14.8% over days (-480, -60) around the announcement. This large negative abnormal return is inconsistent with the null hypothesis of normal performance.

Malatesta (1983) examines 85 merger targets between 1969 and 1974 involving acquisitions of at least $10 million. The CAAR (calculated using the market model) of the target firm over months (-60, -25) relative to the announcement is a statistically significant 12.6%. The CAAR over months (-60, -3) is 4.9%.[2] These positive returns are the opposite of that predicted by the inefficient management hypothesis.

Martin and McConnell (1991) examine 253 tender offer targets over the period from 1958 to 1984. They measure abnormal performance using both the market model and an industry adjustment. Over months (-48, -3) around the announcement, the authors find that the CAAR under either adjustment is insignificantly different from zero, not allowing one to reject the null hypothesis.

However, the authors find that pre-takeover returns are significantly lower for firms where managers are replaced following the tender offer than for firms where managers are not replaced. The authors state (p. 680), "On this basis, the data support the hypothesis that takeovers are a device for disciplining the top managers of poorly performing firms. However, over the same pre-takeover period, the cumulative market model prediction error for the sample of targets which experienced a change in the top manager is not significantly less than zero whereas, the cumulative industry-adjusted return is significantly negative. On this basis, the conclusions drawn depend upon the performance benchmark employed."

Agrawal and Walkling (1994) identify 189 Forbes 800 firms that became targets of 344 separate acquisition attempts over the period from 1980 to 1986. The authors state (p. 995), "The size and market-adjusted abnormal returns over months (-60, -13) relative to the month of bid announcement average -4.6 percent for firms that do not retain their CEOs and -2.9 percent for firms that do. These returns are insignificantly different from each other and from zero." Thus, their

[2]This is our calculation from Malatesta's Table 4.

results do not allow one to reject the null hypothesis of normal performance.

Agrawal and Jaffe (1995) examine 132 mergers between NYSE acquirers and NYSE targets over the period from 1941 to 1961. They find that the CAAR (adjusted for size and beta) to targets over months (-60, -13) relative to the month of merger announcement is insignificantly different from zero. These results do not allow one to reject the null hypothesis.

Kini, Kracaw and Mian (1995) examine 244 successful tender offers over the period from 1958 to 1984. They find that the CAAR (using the market model) over months (-48, -3) around the announcement is 2.44%[3] As with Malatesta (1983), these results are in the opposite direction to that predicted by the inefficient management hypothesis. In addition, they examine three sub-samples: all firms in their original sample with turnover of the top manager, all firms with turnover of the top manager and an insider dominated board, and all firms with turnover of the top manager and an outsider dominated board. In no case are the t-statistics associated with abnormal performance over months (-48, -3) significantly negative at the 5% level. They do, nevertheless, find that the probability of turnover for the top manager is significantly negatively related to abnormal performance over months (-48, -3). However, this last result is not necessarily inconsistent with the null hypothesis. That is, the negative relationship in the regression does not imply that the CAARs are negative for the sub-sample of firms with turnover of the top manager.

Franks and Mayer (1996) examine 33 successful hostile takeovers in the United Kingdom that were first announced during 1985 and 1986. They find that the abnormal return performance (using the market model) for this sample in the five years before the announcement is insignificantly different from the abnormal performance of a non-merging control group matched on size and industry. Results with alternative benchmarks are qualitatively similar. The authors state (p. 164), "We therefore reject the view that hostile takeovers perform a disciplinary role".

II. Other evidence

Shrieves and Stevens (1979) examine 112 firms that were acquired over the period from

[3]This number is our calculation from their Table 3.

1948 to 1971. Using Altman's (1968) model of bankruptcy prediction, the authors find that "15.2 percent of the firms in the acquired firm sample were found to be near bankruptcy at the time they were acquired" (p. 512). By contrast, only 4.5% of the control group of non-acquired firms were found to be near bankruptcy.

Hasbrouck (1985) examines 86 mergers from 1977 to 1982 taken from *Mergers and Acquisitions*. He finds that the average q-ratio of the acquired firms is significantly below the average q-ratio of control groups matched by size or industry.

Palepu (1986) develops a model to predict acquisition targets using public data. Using a sample of 163 firms that were acquired from 1971 to 1979, he finds that the likelihood of takeover is negatively related to a firm's abnormal stock return (calculated from the market model) over the previous four years. Though this result is consistent with the inefficient management hypothesis, Palepu states (p. 32), "While the estimated model is found to be statistically significant, its explanatory power is quite small... The strategy of investing in firms identified by the model as potential targets is found to result in statistically insignificant excess returns. Hence, the estimated model's ability to predict targets is not superior to that of the stock market. Since the market does not seem to identify targets very accurately long before the takeover announcements, it is concluded that the model also does not predict targets accurately." In addition, the paper finds an insignificantly positive relationship between the likelihood of takeover and the return on equity over the previous four years.

Malatesta and Walkling (1988) examine 92 firms that announce an intention to adopt poison pill defenses between December 1982 and March 1986. The paper's Table 7 indicates that these firms had significantly lower profit margins, return on total capital and return on net worth than did their industries over the three years prior to announcement. Similar results are obtained for 99 firms with financial data over the year prior to the announcement.

Using a sample of 371 firms from the 1980 Fortune 500, Morck, Shleifer, and Vishny (MSV) (1988) estimate a probit model of the probability of hostile and friendly takeovers. They find that a firm's probability of hostile takeover is significantly negatively related to the q-ratio of the firm's industry but not to the firm's q-ratio relative to that of the industry. The probability of friendly takeover is unrelated to either of these two attributes. The fact that the probability of

hostile takeover, but not the probability of friendly takeover, is negatively related to the q-ratio is consistent with the inefficient management hypothesis. However, this consistency is weakened since only the industry q, and not the firm's q relative to the industry, is a significant explanatory variable. This consistency is further weakened since Martin and McConnell (1991) find no difference between the pre-takeover abnormal return performance of hostile targets and friendly targets. Furthermore, using a sample of 87 successful tender offers made between October 1968 and December 1980, Lang, Stulz and Walkling (LSW) (1989) find that the average q-ratio of target firms one year before the takeover is insignificantly different in unopposed vs. opposed offers. Finally, using a sample similar to that in MSV (1988), Morck, Shleifer and Vishny (1989) find that the probability of neither hostile nor friendly acquisition is significantly affected by the target's abnormal stock return relative to the industry over a 3-year period prior to the acquisition.[4]

However, LSW do find that the q-ratios of targets fall from year – 5 to year – 1 relative to the year of the tender offer. Furthermore, Barber, Palmer, and Wallace (BPW) (1995) examine the 71 firms of the 1962 Fortune 500 that were acquired from January 1, 1963 to December 31, 1968. The authors find that acquisition rates for predatory mergers are negatively related to the target's q-ratio. No such relationship is found for friendly acquisitions. In addition, Graham, Lemmon and Wolf (GLW) (2001) estimate excess value for the targets of 356 acquisitions completed between 1980 and 1995. GLW measure excess value as the log of the ratio of the target's market value to the sum of its divisions' imputed values. Whether the imputed value of the target is based on a market value-to-sales ratio or a market value-to-book value of assets ratio, both the mean and the median excess values are significantly negative one month prior to acquisition. The results of both BPW and GLW are consistent with the inefficient management hypothesis.

Using a sample of 100 acquisition targets with announcements between April 1977 and December 1986, Song and Walkling (1993) perform logistic regressions relating the probability of being a target to the firm's return on equity (ROE) and its market-to-book value ratio, as well as a number of other variables. Their Table 3 indicates that the probability is insignificantly positively related to ROE, whether the sample consists of targets, contested targets or uncontested targets.

[4]MSV (1989) measure stock returns over the period 1978 to 1980 for acquisitions taking place from 1981 to 1985. Thus, the time between measurement of past stock returns and the acquisition date is not uniform across targets.

The table also shows that the probability of being a target is insignificantly negatively related to the market-to-book ratio.

Mitchell and Lehn (1990) examine 1,158 public corporations covered by Value Line in the last quarter of 1981. They find that firms making bad acquisitions, as measured by announcement period abnormal returns, are more likely to be subsequently acquired than firms making good acquisitions. This paper supports the inefficient management hypothesis, since firms making a bad corporate decision are targeted for takeover.

Using the same sample as Mitchell and Lehn, Shivdasani (1993) relates the probability of a hostile takeover attempt to board composition and ownership structure. He finds that the probability is not significantly related to the percentage of outside directors. However, the probability is negatively related to both the ownership stakes of the outside board members and to the number of additional boards on which the outsiders serve. The paper supports the inefficient management hypothesis, since the probability of a disciplinary (hostile) takeover attempt is inversely related to the board's incentive to monitor effectively (ownership stakes) and to its reputation for effective monitoring (number of other board memberships).

While the results of both Mitchell and Lehn and Shivdasani support the inefficient management hypothesis, they constitute indirect evidence, in our opinion. Mitchell and Lehn focus on only one corporate decision, not on overall firm performance. Shivdasani relates the probability of a hostile takeover attempt to variables likely to be correlated with firm performance, not to firm performance itself.

Berger and Ofek (1996) develop a multinomial logistic model relating the probability of takeover to firm characteristics. Their paper uses 2,277 observations of diversified firms and 1,836 observations of firms reporting only a single business segment over fiscal years from 1984 to 1987. None of the 12 regressions in their Table IV show a significantly negative relationship between the probability of takeover and ROE.

Karpoff, Malatesta and Walkling (1996) examine firms that received shareholder proposal(s) on corporate governance over the period from 1986 to 1990. These proposals can be viewed as an alternate mechanism for changing corporate control. The authors find that the probability of receiving a proposal is significantly negatively related to operating return on sales.

References

Agrawal, A. and J. F. Jaffe. "Does Section 16b Deter Insider Trading by Target Managers?" *Journal of Financial Economics,* 39 (1995), 295-321.

Agrawal, A., and J. F. Jaffe. "Do Takeover Targets Under-perform? Evidence from Operating and Stock Returns." *Journal of Financial and Quantitative Analysis*, – (2003), - .

Agrawal, A., and R. A. Walkling. "Executive Careers and Compensation Surrounding Takeover Bids." *Journal of Finance,* 49 (1994), 985-1014.

Altman, E. "Financial Ratios, Discriminant Analysis, and the Prediction of Corporate Bankruptcy." *Journal of Finance,* 23 (1968), 589-609.

Asquith, P. "Merger Bids, Uncertainty, and Stockholder Returns." *Journal of Financial Economics,* 11 (1983), 51-84.

Asquith, P., and E. H. Kim. "The Impact of Merger Bids on the Participating Firms' Security Holders." *Journal of Finance,* 37 (1982), 1209-1228.

Barber, B. M.; D. Palmer; and J. Wallace. "Determinants of Conglomerate and Predatory Acquisitions: Evidence from the 1960s." *Journal of Corporate Finance,* 1 (1995), 283-318.

Berger, P. G., and E. Ofek. "Bustup Takeovers of Value-Destroying Diversified Firms." *Journal of Finance,* 51 (1996), 1175-1200.

Dodd, P., and R. Ruback. "Tender Offers and Stockholder Returns: An Empirical Analysis." *Journal of Financial Economics,* 5 (1977), 351- 374.

Ellert, J. C. "Mergers, Anti-Trust Law Enforcement and Stockholder Returns." *Journal of Finance,* 31 (1976), 715-732.

Fama, E. F., and J. MacBeth. "Risk, Return and Equilibrium: Empirical Tests." *Journal of Political Economy,* 81 (1973), 607-636.

Franks, J. R., and C. Mayer. "Hostile Takeovers in the UK and the Correction of Management Failure." *Journal of Financial Economics,* 40 (1996), 163-181.

Graham, J. R.; M. L. Lemmon; and J. G. Wolf. "Does Corporate Diversification Destroy Value?" Working Paper, Duke University (2001).

Hasbrouck, J. "The Characteristics of Takeover Targets: q and Other Measures." *Journal of Banking and Finance,* 9 (1985), 351-362.

Karpoff, J. M.; P. A. Malatesta; and R. A. Walkling. "Corporate Governance and Shareholder Initiatives: Empirical Evidence." *Journal of Financial Economics,* 42 (1996), 365-395.

Kini, O.; W. Kracaw; and S. Mian. "Corporate Takeovers, Firm Performance and Board Composition." *Journal of Corporate Finance,* 1 (1995), 383-412.

Lang, L. H.P.; R. M. Stulz; and R. A. Walkling. "Managerial Performance, Tobin's Q, and the Gains from Successful Tender Offers." *Journal of Financial Economics,* 24 (1989), 137-154.

Langetieg, T. "An Application of a Three-Factor Performance Index to Measure Stockholders Gains from Mergers." *Journal of Financial Economics,* 6 (1978), 365-384.

Malatesta, P. H. "The Wealth Effect of Merger Activity and the Objective Functions of Merging Firms." *Journal of Financial Economics,* 11 (1983), 155-182.

Malatesta, P., and R. A. Walkling. "Poison Pill Securities: Stockholder Wealth, Profitability, and Ownership Structure." *Journal of Financial Economics,* 20 (1988), 347-376.

Mandelker, G. N. "Risk and Return: The Case of Merging Firms." *Journal of Financial Economics,* 1 (1974), 303-335.

Manne, H. G. "Mergers and the Market for Corporate Control." *Journal of Political Economy,* 73 (1965), 110-120.

Martin, K. J., and J. J. McConnell. "Corporate Performance, Corporate Takeovers, and Management Turnover." *Journal of Finance,* 46 (1991), 671-688.

Mitchell, M. L., and K. Lehn. "Do Bad Bidders Make Good Targets?" *Journal of Political Economy,* 98 (1990), 372-398.

Morck, R.; A. Shleifer; and R. W. Vishny. "Characteristics of Targets of Hostile and Friendly Takeovers." In *Corporate Takeovers: Causes and Consequences*. A.J. Auerbach, ed. Chicago, IL: University of Chicago Press (1988), 101-129.

Morck, R.; A. Shleifer; and R. W. Vishny. "Alternative Mechanisms for Corporate Control." *American Economic Review,* 79 (1989), 842-852.

Palepu, K. G. "Predicting Takeover Targets: A Methodological and Empirical Analysis." *Journal of Accounting and Economics,* 8 (1986), 3-35.

Samuelson, P. A. *Economics*, Eighth edition. New York, NY: McGraw Hill (1970).

Shivdasani, A. "Board Composition, Ownership Structure and Hostile Takeovers." *Journal of Accounting and Economics,* 16 (1993), 167-198.

Shrieves, R. E. and D. L. Stevens. "Bankruptcy Avoidance as a Motive for Merger." *Journal of Financial and Quantitative Analysis,* 14 (1979), 501-515.

Smiley, R. "Tender Offers, Transaction Costs and the Theory of the Firm." *Review of Economics and Statistics,* 58 (1976), 22-32.

Solow, R. M. "The New Industrial State or Son of Affluence." *The Public Interest,* 3 (1967), 107-113.

Song, M. H., and R. A. Walkling. "The Impact of Managerial Ownership on Acquisition Attempts and Target Shareholder Wealth." *Journal of Financial and Quantitative Analysis,* 28 (1993), 439-457.

Williamson, O. E. *The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm.* Englewood Cliffs, NJ: Prentice Hall (1964).