

The causes and consequences of takeover defense: Evidence from greenmail

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Abstract

We study the joint distribution of ownership, performance, managerial turnover, and takeover activity at repurchasing firms during a five-year period centered on the repurchase, and compare this to the distribution of these variables for a control sample selected on the basis of size and industry. This evidence illuminates the link between defensive activity and performance, as well as the impact of defensive activity on the experience of firms and managers. We find that the performance of firms that pay greenmail is no worse than the performance of firms of similar size that operate in the same industry, either prior to the repurchase or following the repurchase. The fate of managers at firms that pay greenmail appears to reflect their performance, as does the occurrence of takeover activity. The frequency of takeover activity cannot be distinguished from the frequency of takeover activity at firms involved in a 13-D filing. Bid premia appear to be unaffected by the payment of greenmail.

Key words: Corporate performance; Managerial turnover; Takeover defense; Greenmail

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1. Introduction

The targeted share repurchase or “greenmail” transaction is one of the most controversial control related phenomena in corporate finance. In a targeted repurchase, corporate officers agree to repurchase a block of shares at a premium from a single shareholder or group of shareholders. The motivation for the repurchase is presumably the deterrence of a takeover on terms that would be unfavorable to incumbent management, although only a small fraction of targeted repurchases are associated with an outstanding takeover bid. Previous authors have observed that this action is, on average, associated with a statistically significant decline in the wealth of non-participating shareholders; see Dann and Deangelo (1983) and Bradley and Wakeman (1983). Mikkelsen and Ruback (1985), hereafter MR, demonstrate that the joint effect of investment in shares by the eventual recipient of greenmail, and the targeted repurchase is a statistically significant increase in the wealth of nonparticipating shareholders.

We study the joint distribution of ownership, performance, managerial turnover, and takeover activity at repurchasing firms during a five-year period centered on the repurchase. We compare this distribution to the distribution that describes the experience of a control sample selected on the basis of size and industry, and to the distribution that describes the experience of firms involved in a 13-D filing, as reported by MR. This exercise extends our knowledge of this important form of defensive activity in two dimensions. First, it illuminates the link between defensive activity and performance, as well as the impact of defensive activity on the experience of firms and managers. This evidence is complementary to that extracted from announcement returns, which have been the focus of previous investigations concerning the impact of defensive activity on firms and their shareholders; see Jarrell, Brickley, and Netter (1988). Second, the post-repurchase experience delineates the set of reasonable explanations for greenmail by revealing the events that participants should have anticipated at the time of the repurchase. This evidence should serve as a guide to researchers who seek to model shareholder-manager conflict.

Our evidence suggests that a blanket characterization of managers who pay greenmail as poor performers seeking shelter from market discipline at the expense of shareholders is unwarranted. We find that firms that pay greenmail are just as likely to receive a subsequent tender offer, merger proposal, or buyout proposal as firms with an outstanding 13D filing, as reported by MR.¹ The frequency of these events at firms in the control

¹ The filing of a 13-D statement with the Securities and Exchange Commission indicates that an investor has accumulated at least five percent of a firm's shares. Block holders who may seek an active role in the affairs of the firm must file a 13-D statement. This pool of firms represents a control sample whose members are likely to be involved in a struggle for control.

sample is about half that observed in the other two samples. The probability of a completed transaction, conditioned on the receipt of an offer, is nearly identical for repurchasing firms, control firms, and the sample of firms examined by MR. The frequency of completed takeovers is greater at firms that pay greenmail than at firms in the control sample, and cannot be distinguished from the frequency of completed takeovers in the MR sample. The bid premia realized by firms that pay greenmail cannot be distinguished from the bid premia realized by firms in the control group.

The frequency of executive turnover in the two samples is consistent with the notion that repurchase activity is motivated by a desire to extend job tenure: Management turnover is less frequent at repurchasing firms than control firms. This is true unconditionally, and for the subsample of firms that do not experience a change in ownership. It is important to recognize, however, that both ownership changes and managerial turnover are endogenous. Less frequent management turnover at repurchasing firms may reveal that managers of those firms are insulated from market discipline. Alternatively, it may be the case that managerial performance at repurchasing firms does not warrant discipline. Our evidence tends to favor the latter explanation over the former.

Firms that pay greenmail exhibit a level of cash flow and a rate of cash flow growth that cannot be distinguished from the level of cash flow and rate of cash flow growth at firms in the control group. This relationship obtains prior to the repurchase and subsequent to the repurchase. Among firms that experience neither a change in ownership nor managerial turnover – a group that would seem to be representative of entrenched management – we find no evidence of inferior performance in the greenmail sample, in terms of either stock returns or cash flow.

In both the sample of firms that pay greenmail and the control sample, management teams that exhibit poor performance tend to be replaced. We find that managerial turnover is less likely to be associated with poor performance at firms that pay greenmail. Firms involved in a takeover, merger or buyout exhibit positive performance, independent of whether the firm is involved in a greenmail transaction. In short, cross-sectional differences in performance are correlated with changes in ownership and managerial turnover, but not the payment of greenmail.

We document a higher degree of shareholder-management conflict, in the form of lawsuits and proxy activity, at firms that pay greenmail. This conflict is focused on the group of firms that experiences a completed tender, merger or buyout subsequent to the greenmail payment. Among the group of firms that remains independent during the post-repurchase period, the frequency of conflict at firms that pay greenmail cannot be distinguished from the frequency of conflict at firms in the control group.

We reconcile the apparent conflict between these statistics and the negative mean abnormal announcement associated with the greenmail payment by examining the distribution of announcement returns. The moments of that distribution and the behavior of long horizon abnormal returns are jointly inconsistent with the hypothesis that the negative mean announcement return is a sufficient statistic for the wealth effect at individual firms. Our evidence suggests that the impact of a targeted repurchase on shareholder welfare is quite heterogeneous. The heterogeneity that is evident in announcement returns is consistent with the significant variation in the post-repurchase experience documented herein.

The events described in this paper occurred at a time when the frequency of takeover activity was much greater than it is today. The vintage of the sample is a drawback, in that both shareholder-management relationships and the legal environment governing takeover defense have evolved substantially during the last decade. But the evidence presented here is associated with the same period of time as the evidence, based almost exclusively on wealth effects, that comprises the bulk of our empirical knowledge concerning the impact of defensive activity on the welfare of firms and their shareholders. Hence, our evidence allows us to address two issues of broader significance in empirical corporate finance.

The first is the interpretation of mean abnormal announcement returns. Our results are consistent with those of previous authors, in that we find the payment of greenmail to be associated with a statistically significant decline in shareholder wealth. But we find little correlation between the payment of greenmail and firm performance, managerial turnover, or takeover activity. The absence of an apparent link between greenmail and the experience of firms, their managers and shareholders suggests that the information con-

Table 1
Frequency distribution of 110 targeted repurchases made by NYSE and AMEX listed companies during the period 1974 through 1983

Year	Frequency
1983	16
1982	23
1981	21
1980	25
1979	9
1978	9
1977	2
1976	3
1975	1
1974	1
Total	110

tained in announcement returns is far from complete. This evidence should impact the interpretation of announcement returns in other contexts.

A second benefit of this study is the information that it provides concerning shareholder-manager conflict. We find little evidence to support the claim that greenmail is an effective means of entrenching incumbent management. Models of corporate control or institutional design that afford managers the right to reject takeover bids unilaterally, or take actions that are contrary to the interest of shareholders without reprisal conflict with the evidence presented here. This evidence should be reflected in the specification of strategy sets in models of shareholder manager conflict.

The remaining sections of this paper are organized as follows. In the next two sections, we describe our sample and methodology. The experimental evidence is presented and discussed in section 4. Section 5 concludes.

2. Data

2.1. Sample construction

We compiled a sample of firms that paid greenmail from the samples used by Gregg Jarrell and Michael Ryngaert, Michael Bradley and Lee Wakeman, and Clifford Holderness and Dennis Sheehan; see Jarrell and Ryngaert (1984), Bradley and Wakeman (1983), and Holderness and Sheehan (1988). Jarrell and Ryngaert's sample consists of 88 targeted repurchases made by NYSE or AMEX listed companies during the period 1978 through 1983. Each of these targeted repurchase blocks exceed three percent of all outstanding common stock, and the repurchase premium is at least three percent over the market price at the repurchase announcement. Michael Bradley and Lee Wakeman's sample consists of 61 targeted repurchases made by NYSE or AMEX companies during the period 1974 through 1980.² Their sample met the criteria that the bid to repurchase the block was successful, the repurchase was not part of a previously announced plan, and no other information about the repurchasing firm was published in the *Wall Street Journal* during the three-day period around the repurchase date. Clifford Holderness and Dennis Sheehan's sample consists of 12 targeted repurchases made by NYSE or AMEX companies from six controversial investors during 1977–1982.³

Table 1 provides a frequency distribution for the period 1974–1983 of the

² Bradley and Wakeman obtained their sample by an exhaustive reading of the annual "Corporate News" section for 1974–1977, and the "Reacquired Shares" section for 1978–1980.

³ Holderness and Sheehan compiled their sample from the 13(d) filings in the *SEC News Digest* of these six controversial investors.

number of targeted repurchases in the sample. Our sample is less than the sum of the samples of the above three studies because of overlapping observations, and because the screening criteria below resulted in the elimination of some observations.

We constructed a control sample by selecting without replacement from the Center for Research in Security Prices (CRSP) monthly master, during the month preceding the repurchase, the firm closest in value to the repurchasing firm from the sample of all firms having the same three digit SIC code. If there were no other firms on the monthly master having the same three digit code, the repurchasing firm was dropped from the sample. If we discovered that a control firm had been involved in a targeted repurchase during the two years subsequent to the repurchase, the control firm was dropped, and the same sampling rule was applied to the remaining firms in the pool of potential control firms. This exercise yielded a sample of 73 repurchasing firms, each matched with a control firm.

Repurchase premia were calculated for each of these 73 repurchasing firms using the repurchase price and the closing price on the trading day preceding the repurchase. We observe a minimum repurchase premium of 3 percent, a maximum premium of 150 percent, a mean premium of 22 percent and a median premium of 19 percent. The fraction of shares repurchased is least 3 percent of outstanding shares in every case.

For each of the 146 firms in the combined sample of repurchasing firms and control firms, we read the *Wall Street Journal Index* during the two calendar years following the repurchase. We recorded events associated with an offer to purchase the firm through a tender offer, merger or leveraged buyout, events indicating conflict between managers and shareholders, and events associated with the turnover of the Chief Executive Officer or President of the firm. We also recorded unusual events such as the implementation of an antitakeover amendment, a second targeted share repurchase, or a bankruptcy filing.

2.2. *Change of Ownership*

Using this data, we assigned each firm to one of three categories describing takeover experience. Firms involved in a completed tender offer, merger or buyout are assigned to one category. Firms that received a tender offer, merger proposal or buyout proposal but experienced no change in ownership were assigned to a second category. A residual category contains the remaining firms.

2.3. *Management Turnover*

A time series of management turnover was constructed for a four year period, beginning with the year preceding the repurchase, using the *Standard*

and *Poors Register of Executives, Directors and Corporations*. In each year, we recorded the names of the top two officers in the order listed in *Standard and Poors*.⁴ A change in both of the top two names, within the course of a single year, is classified as “Complete Turnover.” A change in one but not both of the top two officers is classified as “Partial Turnover.” In every case, Partial Turnover indicates that the individual in the second position moves up to assume the top position. (This is a feature of the data, not our classification system.) Firms that experienced neither partial turnover nor complete turnover were deemed to have experienced “No Turnover.”

The advantage of considering these top two officers rather than individuals with titles of President or Chairman, is that such titles are sometimes retained by figureheads without real executive power. We found that the two officers that signed the proxy statement were often the same as the above-mentioned top two officers. Similar to Morck, Shleifer, and Vishny (1989), we conjecture that individuals signing the proxy statement are more likely to be wielding executive power in the firm.

Standard and Poors is published each January, and describes the officers of the corporation as of the end of the previous calendar year, so repeating this exercise five times yields a time series describing turnover during a four year period. If year zero is the year of the targeted repurchase, the turnover series runs from year minus one to year plus two. Unfortunately, this series does not allow us to distinguish turnover preceding the repurchase from turnover following the repurchase during the year of the repurchase. The advantage of this approach to the analysis of turnover is that the data are comprehensive. We shall see that this has a substantive impact on our results.

We recorded one additional piece of information about the top officer of the corporation that may help distinguish voluntary departures from forced turnover. In firms where the top officer changes from year to year, we record a “CEO departure” in the event that neither the proxy statement nor *Standard and Poors* provides evidence that the former CEO is still affiliated with the firm.⁵ This group of firms is a subset of the group that experiences CEO turnover.

2.4. Performance

We calculate performance measures based on cash flow and stock market performance. Cash flow statistics describe current operations of the firm,

⁴ In situations where a title for one of the top two individuals suggests that the individual is a figure head, we omitted that individual from the set of the top two officers. *Chairman Emeritus* is one such title that we encountered.

⁵ In some cases, a retiring CEO will remain as a director. This would not qualify as a departure.

while stock returns are forward looking. The evidence from these two sources is complementary.

Our cash flow variable is earnings before interest and taxes standardized by the book value of assets. This measure has also been used by Weisbach (1988), and Murphy and Zimmerman (1991). These data are computed using the COMPUSTAT full coverage file, primary-secondary-tertiary file and research file. We refer to this variable as cash-flow-based return on assets (ROA), or simply cash flow, and consider both its level and its growth rate over three periods in time. These are the three-year period beginning two-years prior to the repurchase and continuing through the year of the repurchase, the three-year period beginning with the year of the repurchase and continuing through the end of the second year following the repurchase, and the five-year period centered on the year of the repurchase.

Stock returns are calculated for two different windows using the procedure described in the appendix of Dodd and Warner (1983). For firms that experience a tender offer, merger or buyout, we define the “resolution date” as the date of the final announcement – as reported in the *WSJ* – of the change in ownership. For firms that did not experience any of these events, the resolution date is defined as the 500th trading day after the repurchase date.⁹ The market model is estimated using 150 daily returns from day –170 through day –21 prior to the targeted repurchase date. The CRSP equally weighted index is used as the market index.

2.5. Conflict

We recorded evidence of shareholder-management conflict reported in the *Wall Street Journal Index*. Shareholder lawsuits and proxy fights are considered to be evidence of conflict.

2.6. Ownership

Ownership data for CEO's and Officers and Directors as a group and for institutions were extracted from the proxy statement closest to the repurchase date. We use this information to calculate both voting power and the equity stake held by each group.

⁹For nine companies the CRSP files did not have returns through 500 days after the repurchase date. We used as many returns as were available in the CRSP file in computing the post repurchase CARs.

3. Methodology

We seek to identify the impact of greenmail payments on firm value, managerial turnover and takeover activity. One econometric strategy for investigating these issues is to include a greenmail dummy as an explanatory variable in a regression model. The hypothesis that greenmail payments are motivated by factors that also affect managerial turnover and takeover activity implies that this dummy variable is endogenous. Ignoring the endogeneity of the greenmail payment generates econometric models that are not identified. If the decision to pay greenmail is treated as an endogenous variable, either exclusion restrictions or strong distributional assumptions are required to attain identification. Both are difficult to justify. As an alternative, we contrast the characteristics of firms that pay greenmail with the characteristics of firms that do not pay greenmail. Differences in ownership structure, performance and experience with respect to takeover activity and managerial turnover do not allow us to assess the impact of greenmail on firms and their shareholders with the precision of a structural model. But examination of these contrasts does allow us to rule out some explanations of greenmail, and also sheds some light on the relative merits of other explanations.

We make extensive use of both the Pearson χ^2 test for a difference in event probabilities and an alternative form of this statistic known as the Yates χ^2 test. The Yates correction is appropriate when event frequencies are low. Both versions of the test statistic are described in Bishop, Feinberg and Holland (1976). We also report nonparametric rank tests for a difference of means and difference of medians. These are presented in Conover (1980).

The power of the χ^2 test statistics is sensitive to critical values in samples of 73 observations, and even more sensitive in the samples of less than 73 that arise when we consider conditional event frequencies. In selected tables, we present empirical calculations of power under the alternative hypothesis for the Pearson χ^2 test as well as the Yates corrected version. Empirical power is calculated from 1000 replications of sample assuming that the observed alternative is true. We report power for critical values associated with the 5 percent, 10 percent and 20 percent levels of significance.

4. The evidence

4.1. *Managerial turnover and takeover activity*

The joint distribution of managerial turnover and ownership change during the two-year period subsequent to the greenmail transaction appears in Table 2. The most frequent outcome in both the greenmail sample and the

Table 2

The joint distribution of change in ownership and managerial turnover at 73 firms involved in a targeted share repurchase and 73 control firms selected on the basis of size and industry during the 2 years following the repurchase. The targeted share repurchases occurred between 1974 and 1983

	No change in ownership	Tender, merger or buyout proposed but not completed	Tender, merger or buyout completed
Panel A: 73 firms involved in a targeted share repurchase. Each cell entry denotes the number of firms that realize the given combination of change in ownership and managerial turnover			
No management turnover	43	4	9
CEO turnover only	6	0	2
Top management turnover	4	0	5
Panel B: 73 control firms selected on the basis of size and industry. Each cell entry denotes the number of firms that realize the given combination of change in ownership and managerial turnover			
No management turnover	42	1	5
CEO turnover only	11	1	1
Top management turnover	9	0	3
Panel C: The difference in event frequencies for repurchasing firms and control firms. A positive entry indicates that the event is more likely at firms involved in a targeted share repurchase. χ^2 statistics and p-values for the null hypothesis that the event frequencies are the same in the two samples are reported in parenthesis. We report Pearson χ^2 statistics when there are at least 5 occurrences of the event in both samples, and Yates corrected χ^2 statistics when there are less than 5 occurrences of the event in at least one of the two samples. Missing values indicate that the statistic could not be computed because of low frequency			
No management turnover	1 (0.03, 0.87)	3 (0.83, 0.36)	4 (1.26, 0.26)
CEO turnover only	-5 (1.66, 0.20)	-1 (0, 1)	1 (0, 1)
Top management turnover	-5 (1.35, 0.25)	0	2 (0.13, 0.72)

control sample is maintenance of the status quo; approximately 60 percent of the firms in both samples realize neither a change in ownership nor any management turnover during the two-year period following the repurchase. Firms from the greenmail sample are more likely to be involved in a completed tender offer, merger or buyout than firms from the control sample. If we focus on the set of firms that experience no change in ownership, we see that managers of firms involved in a targeted share repurchase are less likely to experience separations. None of the differences documented in the third panel of the table is statistically significant. To increase the power of test statistics, we consider the marginal distributions.

Table 3 indicates that the frequency of CEO turnover at firms involved in

Table 3

The frequency of management turnover at 73 firms involved in a targeted share repurchase and 73 firms control firms selected on the basis of size and industry during the 2 years following the repurchase. The targeted share repurchases occurred between 1974 and 1983. Cell entries denote the relative frequency of the specified turnover measure. The χ^2 statistics and p-values are associated with the null hypothesis that the relative frequencies are the same in the two samples. We report Pearson χ^2 statistics when there are at least 5 occurrences of the event in both samples, and Yates corrected χ^2 statistics when there are less than 5 occurrences of the event in at least one of the two samples. The empirical power of the test at the alternative hypothesis is calculated from 1000 replications of each sample

	Greenmail	Control	χ^2	p-value	power at 5 percent	power at 10 percent	power at 20 percent
CEO turnover	17/73	25/73	2.14	0.14	0.30	0.41	0.56
CEO departs firm	13/73	13/73	0	1	N.A.	N.A.	N.A.
Partial turnover	8/73	13/73	1.39	0.24	0.24	0.35	0.49
Complete turnover	9/73	12/73	0.50	0.48	0.10	0.19	0.32
CEO turnover given no change in ownership	10/57	21/64	3.69	0.06	0.51	0.63	0.75
CEO turnover given a change	7/16	4/9	0	1	N.A.	N.A.	N.A.

greenmail transactions is less than the frequency at control firms.⁷ This difference is marginally significant, as is the difference in turnover frequency among those firms that experience no change in ownership. Our more

⁷ The observed difference in the rate of CEO replacement conflicts with results reported previously by Klein and Rosenfeld (1988), who examined management turnover at repurchasing firms during the period preceding and subsequent to the repurchase, and compared this to turnover at a sample of firms selected at random from the CRSP tape, and to a sample of firms involved in 13D filings but not a targeted repurchase. Their study differs from ours in several respects. We believe that the most important differences are that their sampling rule does not incorporate industry or time effects, and that they rely on the *Wall Street Journal Index* to identify turnover.

Our CEO turnover series all display an increase in the turnover rate between year -1 and year 0 . (This is consistent with the results reported by Klein and Rosenfeld for their sample of repurchasing firms.) Moreover, the observed rates of turnover for both repurchasing firms and control firms exceed the rate of turnover documented by Coughlan and Schmidt (1985) in a larger sample with a different temporal structure. One explanation of these characteristics of our sample is that 1982–1983 recession was associated with an increase in turnover at both repurchasing firms and control firms. Whatever the explanation, the fact that the control sample is matched to the sample of repurchasing firms in terms of its industry and temporal characteristics has a significant effect on the findings concerning greenmail and executive turnover.

A second difference between the two studies is that Klein and Rosenfeld used the *Wall Street Journal Index* to identify turnover. This allows the observer to identify the timing of an event more precisely than do our *Standard and Poors* series. But we found the correlation between *Standard and Poors* (which is comprehensive) and the *Wall Street Journal Index* (which is not) to be weak. A great deal of turnover is simply not reported in the *Wall Street Journal Index*.

Table 4

The frequency of tender offers, mergers and buyouts at 73 firms involved in a targeted share repurchase and 73 firms control firms selected on the basis of size and industry during the 2 years following the repurchase. The targeted share repurchases occurred between 1974 and 1983. Cell entries denote the relative frequency of the specified measure of change in ownership. The χ^2 statistics and p-values are associated with the null hypothesis that the relative frequencies are the same in the two samples. We report Pearson χ^2 statistics when there are at least 5 occurrences of the event in both samples, and Yates corrected χ^2 statistics when there are less than 5 occurrences of the event in at least one of the two samples. The empirical power of the test at the alternative hypothesis is calculated from 1000 replications of each sample

	Green-mail	Control	χ^2	p-val	power at 5 percent	power at 10 percent	power at 20 percent
Tender offer, merger or buyout proposed ^a	20/73	11/73	3.31	0.07	0.44	0.58	0.71
Tender offer, merger or buyout completed	16/73	9/73	2.37	0.12	0.33	0.46	0.61
Completed tender offer, merger or buyout given proposal	16/20	9/11	0.02	0.90	0.04	0.10	0.23
Tender offer or merger proposed	15/73	9/73	1.80	0.18	0.27	0.40	0.55
Tender offer or merger completed	11/73	6/73	1.66	0.20	0.25	0.36	0.51
Completed tender offer or merger given proposal	11/15	6/9	0.12	0.73	0.05	0.17	0.21
Buyout proposed	7/73	3/73	0.97	0.33	0.16	0.24	0.38
Buyout completed	5/73	3/73	0.13	0.75	0.05	0.09	0.18
Completed buyout given proposal	5/7	3/3	0.03	0.86	N.A.	N.A.	N.A.

^a Two of the firms involved in a repurchase and one of the control firms received both a merger proposal and a buyout proposal

restrictive turnover measures – which are not independent of the overall measure – generally suggest a lower frequency of turnover at repurchasing firms than control firms. The frequency of CEO departures and the conditional probability of turnover given a change in ownership are identical in the two samples. ⁸

Table 4 contrasts the experience of repurchasing firms and control firms with respect to ownership change. In Table 5, we compare this dimension of the post-repurchase experience to the experience of the set of firms examined by MR. The evidence in Table 4 indicates that firms that pay greenmail are almost twice as likely to receive a tender offer, merger or buyout proposal

⁸ The frequency of CEO turnover given a change in ownership as noted in Table 3 are less than the turnover frequencies in Martin and McConnell (1991). These authors find 154 turnovers in the two years subsequent to a takeover in 253 tender offer target firms during 1958–1984.

Table 5

The relative frequency of ownership change at 73 firms involved in a targeted share repurchase and 337 firms involved in 13D filing.^a The targeted share repurchases occurred between 1974 and 1983. The 13D filings occurred between 1978 and 1980. Ownership change at repurchasing firms occurs during the two-year period following a targeted share repurchase. Ownership change in the Mikkelsen and Ruback samples occurs during a three-year period subsequent to the filing of a 13-D statement. Cell entries denote relative frequency. χ^2 statistics and p-values are associated with the null hypothesis that the relative event frequencies are the same in the two samples. We report Pearson χ^2 statistics when there are at least 5 occurrences of the event in both samples, and Yates corrected χ^2 statistics when there are less than 5 occurrences of the event in at least one of the two samples. The empirical power of the test at the alternative hypothesis is calculated from 1000 replications of each sample

	Green-mail	13D	χ^2	p-val	power at 5 percent	power at 10 percent	power at 20 percent
Sample size	73	337					
Tender, merger or buyout proposed	0.27	0.27	0	1	N.A.	N.A.	N.A.
Completed change of ownership	0.22	0.26	0.56	0.45	0.09	0.15	0.28
Unsuccessful attempt at change in ownership	0.05	0.01	4.96	0.03	N.A.	N.A.	N.A.
Targeted repurchase	0.08	0.12	0.69	0.41	0.09	0.16	0.30
Complement of first three categories	0.62	0.61	0	1	N.A.	N.A.	N.A.

^a All 13D information is from Table 1 of Mikkelsen and Ruback (1985). Category definitions are consistent with Mikkelsen and Ruback.

as firms in the control sample. The conditional probability of a completed offer given a proposal is approximately equal in the two samples. The unconditional probability of a completed offer is nearly twice as great among repurchasing firms as among control firms. The difference in probability of a proposal and the probability of a completed offer are marginally significant. If we disaggregate these measures and consider tender offers and mergers on the one hand and buyouts on the other hand, no obvious differences emerge.

The evidence in Table 5 suggests that the post-repurchase experience of firms involved in greenmail transactions bears a much stronger resemblance to the experience of firms in the MR sample than to the experience of our control sample.⁹ The likelihood of a proposed tender, merger or buyout is identical in the greenmail sample and the MR sample. The probability of a

⁹ Mikkelsen and Ruback study the experience of firms involved in a 13-D filing during the three year period beginning with the filing. We document the experience of firms involved in a greenmail transaction through the end of the second calendar year following the transaction. If repurchase dates are uniformly distributed throughout the calendar year, the mean length of time that we follow a firm involved in a targeted repurchase is 2.5 years.

completed change of ownership is 26 percent in the MR sample and 22 percent in the sample of repurchasing firms. There is also a striking similarity in the experience of these firms with respect to a subsequent greenmail transaction; 8 percent of the firms in the greenmail sample are involved in a second repurchase, while 12 percent of the firms in the MR sample engage in a targeted share repurchase. The only noticeable difference between the two samples is the probability of an unsuccessful offer. Firms selected on the basis of their involvement in a greenmail transaction are much more likely to reject a proposed tender, merger or buyout.

4.2. Performance

In this section, we contrast the performance of firms that pay greenmail with the performance of firms in the control sample, and also consider the relationship between performance and outcomes across the two samples. We examine these relationships during the time period preceding the repurchase, the time period following the repurchase, and the time period spanning the repurchase. In some cases, survivorship bias may contaminate statistics based on information from the post-repurchase period. We indicate in our discussion the statistics that are likely to be affected by this problem. In general, statistics describing performance prior to the repurchase should not reflect a bias.

In Table 6, we examine the unconditional difference in performance between firms that pay greenmail and control firms. Panel A describes differences in our cash-flow-based measure of return on assets. In Panel B, we consider differences in the growth rate of this measure. Panel C depicts differences in stock market returns at announcement of the repurchase, and for the longer period of announcement through resolution.

The evidence in Panel A suggests that there is little difference between the performance of the sample of firms that pay greenmail and the control sample during either the period preceding the repurchase or the period following the repurchase. This perception is reinforced by the evidence in panel B. All but one of the point estimates in Panels A and B indicates superior performance by firms that pay greenmail. The only statistically significant difference documented in either Panel A or Panel B reveals that cash flow per unit of assets is growing more rapidly at repurchasing firms than at control firms during the period beginning two years prior to the repurchase and ending with the year of the repurchase. These results are informative because they reveal what is actually happening at sample firms. Stock returns, in contrast, reflect investor expectations of future cash flows.

The number of observations available for calculating sample statistics is substantially less than the full sample in each of the six cases described in Panel A and Panel B. Examination of the distribution of missing observations

Table 6

Unconditional differences in performance measures for 73 firms that pay greenmail and a control sample of 73 firms selected on the basis of size and industry during the five year period centered on the year of the repurchase

years	#g, #c	means	z-rank	p-val	medians	χ^2	p-val
Panel A: Differences in compound cash-flow-based ROA for firms that pay greenmail and firms that do not pay greenmail							
[−2, +2]	49,52	2.30	0.06	0.96	1.10	0.01	0.92
[−2,0]	63,60	−0.17	−0.18	0.86	0.20	0.20	0.65
[0, +2]	51,54	4.14	0.53	0.60	4.30	0.78	0.38
Panel B: Differences in compound cash-flow-based ROA growth for firms that pay greenmail and firms that do not pay greenmail							
[−2, +2]	50,52	3.48	1.34	0.18	0.40	0.16	0.69
[−2,0]	63,60	2.41	1.92	0.06	1.70	2.94	0.09
[0, +2]	51,54	0.78	0.31	0.76	0.30	0.01	0.92
Panel C: Difference in stock returns realized by firms that pay greenmail and firms that do not pay greenmail							
<i>Return</i>							
Announcement	73,72	−4.27	−4.93	0.00	−3.45	17.94	0.00
Repurchase to Resolution	73,72	−14.57	−0.99	0.32	−14.25	1.55	0.21

suggests that missing values are randomly distributed across the sample during the period prior to the repurchase. (See Appendix A.) In the post-repurchase period, missing values are likely to be associated with firms involved in a tender offer, merger or buyout, independent of whether the firm paid greenmail. The evidence in Table 6 therefore suggests that the performance of repurchasing firms is not inferior to the performance of firms in the control sample prior to the repurchase. Moreover, there is no evidence of inferior performance by firms that pay greenmail among the set of firms that remain independent during the period following the repurchase.

The stock returns documented in Panel C are consistent with those reported by previous authors. At the announcement of the repurchase, firms that pay greenmail realize a mean return that is 4.27 percent less than the mean return realized by control firms over the same two-day period, and a median return that is 3.45 percent less than the median return realized by control firms. Both differences are highly significant. Between repurchase and resolution, these differences increase to 14.57 percent and 14.25 percent, respectively. Neither difference is statistically significant. The stock return data do not reflect a survivorship bias.

In Table 7, we present some regression results that describe the correlation between performance and the post-repurchase experience. The dependent variable in Panel A and Panel B is a measure of performance during the

Table 7

The relationship between performance measures and managerial turnover, takeover activity and greenmail during the two-year period preceding the repurchase

Sample	Nobs	Constant	Partial Turnover	Complete Turnover	Attempted Takeover	Completed Takeover	Adjusted R ²
Panel A: Estimated coefficients from regressions of cash-flow-based ROA during the two-year period preceding the repurchase on indicators for firm experience with respect to management turnover, change in ownership through either a takeover or buyout, and targeted share repurchases. The indicators refer to the post-repurchase period							
Full	123	0.35 (15.74)	0.00 (0.09)	-0.20 (-3.68)	-0.07 (-0.89)	0.13 (2.71)	0.10
Greenmail	63	0.33 (14.96)	-0.03 (-0.57)	-0.09 (-1.51)	-0.03 (-0.42)	0.11 (2.42)	0.05
Control	60	0.37 (9.43)	0.02 (0.30)	-0.29 (-3.21)	-0.16 (-0.89)	0.15 (1.54)	0.13
Difference ^a		-0.04 (-0.81)	-0.06 (-0.55)	0.20 (1.81)	0.13 (0.72)	-0.04 (-0.43)	
Panel B: Estimated coefficients from regressions of growth in cash-flow-based ROA during the two-year period preceding the repurchase on indicators for firm experience with respect to management turnover, change in ownership through either a takeover or buyout, and targeted share repurchases. The indicators refer to the post-repurchase period. Coefficients have been multiplied by 100 to facilitate comparison							
Full	123	-1.25 (-1.43)	-1.14 (-0.58)	-4.63 (-2.21)	1.49 (0.47)	0.49 (0.26)	0.02
Greenmail	63	-0.83 (-0.85)	0.39 (0.16)	0.58 (0.23)	2.86 (0.90)	-0.62 (-0.32)	-0.05
Control	60	-1.52 (-1.05)	-1.69 (-0.56)	-8.14 (-2.49)	-1.54 (-0.24)	0.04 (0.01)	0.03
Difference ^a		0.68 (0.40)	2.09 (0.52)	8.71 (2.06)	4.39 (0.65)	-0.66 (-0.17)	
Panel C: Estimated coefficients from regressions of stock market performance on indicators for firm experience with respect to management turnover, change in ownership through either a takeover or buyout, and targeted share repurchases. Coefficients have been multiplied by 100 to facilitate comparison							
Full	145	-1.40 (-2.22)	0.44 (0.31)	-0.03 (-0.02)	-3.79 (-1.51)	-1.43 (-1.05)	0.11
Greenmail	73	-3.50 (-3.25)	0.27 (0.10)	-0.81 (-0.29)	-4.62 (-1.22)	-0.17 (-0.08)	-0.04
Control	72	0.75 (1.46)	-0.88 (-0.81)	-0.47 (-0.41)	0.56 (0.23)	-1.13 (-0.87)	-0.04
Difference ^a		-4.25 (-3.53)	1.15 (0.41)	-0.34 (-0.12)	-5.18 (-1.02)	0.97 (0.35)	
Panel D: Estimated coefficients from regressions of stock market performance from announcement through resolution on indicators for firm experience with respect to management turnover, change in ownership through either a takeover or buyout, and targeted share repurchases. Coefficients have been multiplied by 100 to facilitate comparison							
Full	145	-1.86 (-0.20)	34.85 (1.67)	2.31 (0.11)	-32.68 (-0.89)	16.62 (0.83)	0.00

Table 7 (continued)

Sample	Nobs	Constant	Partial Turnover	Complete Turnover	Attempted Takeover	Completed Takeover	Adjusted R ²
Greenmail	73	–2.11 (–0.19)	36.40 (1.28)	–11.97 (–0.42)	–77.29 (–1.99)	6.85 (0.31)	0.04
Control	72	–0.68 (–0.05)	25.19 (0.81)	12.72 (0.38)	60.68 (0.85)	42.62 (1.15)	–0.02
Difference ^a		–1.43 (–0.08)	11.21 (0.26)	–24.69 (–0.56)	–137.98 (–1.77)	–35.78 (–0.85)	

^a The difference in the values of the regression coefficients is calculated under the maintained hypothesis that all coefficients are different in the two samples. The test statistic for the difference in values is distributed as Student's *t*.

two-year period preceding the repurchase. The independent variables are a set of indicators that describe the experience of the firm during the post-repurchase period. Estimated coefficients and test statistics illustrate the relationship between mean performance in the pre-repurchase period and the post-repurchase experience. For example, the regression coefficient of –0.20 in the first row of Panel A reveals that firms that experience complete managerial turnover during the two-year period subsequent to the repurchase experienced cash flow that was, on average, 20 percent lower than the cash flow experienced by other firms in the sample. The advantage of this approach to the analysis of the relationship between performance and the post-repurchase experience is that it avoids problems associated with the endogeneity of the post-repurchase experience.¹⁰

The evidence in Panel A and Panel B indicates an important difference in the cross-sectional relationship between performance and managerial turnover for firms that pay greenmail and firms in the control sample. In the control sample, there is a strong, statistically significant negative relationship between management turnover and both cash-flow-based ROA and its growth rate. This implies that negative performance is associated with the subsequent complete turnover of top management. The observed relationship is consistent with, but substantially stronger than the results reported by Morck, Shleifer and Vishny (1989). We observe a much weaker relationship, in both magnitude and statistical significance, for firms that pay greenmail. The difference in the relationship between performance and turnover across the two samples is statistically significant for both the level of cash flow and its growth rate. These results imply that a *smaller* negative deviation in performance is associated with managerial turnover within the sample of firms that

¹⁰ Results for the period subsequent to the repurchase and the period spanning the repurchase, presented in Appendix B, are consistent with the results reported here. Focusing on the period prior to the greenmail transaction mitigates the potential influence of survivorship bias.

pay greenmail. Firms that pay greenmail do experience complete managerial turnover subsequent to the payment of greenmail, and those managers who depart were, on average, stronger relative to their reference group than the departing managers of firms that did not pay greenmail.

It is also important to contrast the performance of firms that do not experience managerial turnover, since the relationship between turnover and performance described above might obtain in world where all firms from the greenmail sample experience lower cash flow and lower cash flow growth than any firm in the control sample. Other evidence from the regression is inconsistent with this scenario. The estimated constants reveal that among firms that experience neither managerial turnover nor any sort of takeover activity, cash flow performance at firms that pay greenmail cannot be distinguished from the cash flow performance of firms in the control sample. Within this group, firms that pay greenmail exhibit cash-flow-based ROA that is slightly less than the cash-flow-based ROA of firms in the control sample. The growth rate of cash flow is slightly greater at firms that pay greenmail. The magnitude of these differences is small and neither difference is statistically significant. If we condition on the absence of turnover but not takeover activity, firms in the greenmail sample exhibit superior performance in both cash-flow-based ROA and its growth rate. Again, the differences are not statistically significant.

In sum, the cross-sectional evidence suggests that the low rate of managerial turnover among firms in the greenmail sample, which is documented in Table 2 and Table 3, may be explained by performance. The evidence that we have considered is inconsistent with the hypothesis that managers of these firms enjoy unwarranted protection from discipline in the face of poor performance.

The estimates in Panel A and Panel B also reveal that firms involved in a completed tender, merger or buyout realize above average cash flow per unit of assets during the period preceding the repurchase. The superior performance is statistically significant in the full sample and in the sample of firms that pay greenmail, but not in the control sample. The difference in correlation between a completed change of ownership and the level of cash-flow-based ROA across the two samples is not, however, statistically significant. The observed relationship between cash flow and takeover activity is inconsistent with a generic characterization of takeover activity as a mechanism for punishing poor performance.¹¹

¹¹ Our experimental design does not afford a direct comparison with the evidence reported by Morck, Shleifer and Vishny, who distinguish hostile takeovers from friendly takeovers and estimate a structural model. But the relationship between takeover activity and performance reported in Table 7 appears to be both inconsistent with the results of Morck, et al., and statistically stronger.

These are the only statistically significant cross-sectional relationships in Panel A and Panel B. Evidence for the post-repurchase period and for the five-year period spanning the repurchase (reported in Appendix B) is consistent with these results.

Panel C and Panel D describe the cross-sectional structure of stock returns at announcement and over the longer period of announcement through resolution. There is little cross-sectional structure to the return data. The estimated constants indicate that among firms that experience neither management turnover nor any sort of takeover activity, the difference in mean return between announcement and resolution is 1.43 percent. The only statistically significant difference in cross-sectional structure is found among the set of firms that experience an unsuccessful takeover attempt following the share repurchase. Firms from the greenmail sample that experience this outcome realize a statistically significant return penalty relative to other firms that pay greenmail. The difference between this penalty and the positive but statistically insignificant spread realized by the same group in the control sample is marginally significant. Only five firms from the full sample fall into this category.

We conclude this section with one final piece of evidence concerning the relative performance of firms that pay greenmail. We calculated bid premia, defined as the percentage difference between the bid price and the target's closing price five days prior to the initial announcement of a successful takeover bid, for firms that experienced a change in ownership through a tender offer, merger or buyout. Data were available for 15 of the 16 firms in the greenmail sample that experienced a change in ownership, and 8 of the 9 firms in the control sample that realized this outcome. Firms in the greenmail sample realize a mean bid premium of 47.6 percent and a median bid premium of 38.9 percent. Firms in the control sample realize a mean bid premium of 42.0 percent and a median bid premium of 43.3 percent. Neither difference is statistically significant.

4.3. Shareholder manager conflict

Summary statistics for some different measures of conflict between managers and shareholders are presented in Table 8. The first set of indicators describes lawsuits filed by shareholders against managers. Lawsuits related to repurchase activity are reported separately from other lawsuits, which fall into the categories of management policy, alleged fraud or misconduct, and control activity. Lawsuits concerning management policy pertain to either an investment decision or the decision to sell an operating division in each of the reported cases. Suits alleging fraud or misconduct include only actions initiated by shareholders against managers; we have excluded suits filed by competitors or the government. Lawsuits related to control activity are

Table 8

The frequency of shareholder-management conflict at 73 firms involved in a targeted share repurchase and 73 control firms selected on the basis of size and industry during the 2 years following the repurchase. The χ^2 statistics and p-values are associated with the null hypothesis that the relative frequencies are the same in the two samples. We report Pearson χ^2 statistics when there are at least 5 occurrences of the event in both samples, and Yates corrected χ^2 statistics when there are less than 5 occurrences of the event in at least one of the two samples. The empirical power of the test at the alternative hypothesis is calculated from 1000 replications of each sample

Event	Green-mail	Control	χ^2	p-val	power at 5 percent	power at 10 percent	power at 20 percent
Greenmail lawsuit	6	0					
Other lawsuits	10	6	1.12	0.29	0.17	0.29	0.46
Management policy	4	2	0.17	0.68	N.A.	N.A.	N.A.
Fraud or misconduct	1	3	0.26	0.61	N.A.	N.A.	N.A.
Control activity	5	1	1.56	0.21	N.A.	N.A.	N.A.
Proxy fight	2	0	0.51	0.48	N.A.	N.A.	N.A.
Dissident seated	1	0	0	1	N.A.	N.A.	N.A.
Number of firms involved in at least one event other than a lawsuit related to greenmail	12	6	2.28	0.14	0.37	0.49	0.65
Number of firms involved in at least one event	16	6	5.35	0.02	0.65	0.76	0.85

motivated either by the refusal of management to consider an outside offer to purchase the firm, or by the terms offered to shareholders in a management led buyout. Legal action initiated by the recipient of greenmail is excluded from all of these measures.

The second set of indicators involves conflict that is reflected in the proxy process. We observe both proxy fights and the seating of a dissident on the board at firms that pay greenmail. The targeted share repurchase was not the central issue in any of the three cases reported in the table, although the repurchase was discussed during both proxy fights. The central motivation for each of the proxy contests appears to be either a dispute over management policy, the refusal of management to consider reasonable offers to purchase the firm, or both.

The data illustrate a consistent pattern of conflict at firms involved in a repurchase. The frequency of shareholder-management conflict at firms that pay greenmail is more than twice the frequency of conflict at firms in the control sample. This difference is statistically significant. If lawsuits related to the greenmail payment are excluded, we find that conflict is twice as likely at firms that pay greenmail. This difference is marginally significant.

The distribution of conflict across the sample, which appears in Table 9, indicates that conflict is concentrated among firms involved in a tender offer, merger or buyout following a targeted share repurchase. Within this group,

Table 9

The frequency of shareholder-management conflict at 73 firms involved in a targeted share repurchase and 73 control firms selected on the basis of size and industry during the 2 years following the repurchase. Each cell entry denotes the number of firms that experience shareholder-management conflict in the form of either a lawsuit or proxy fight

	No change in ownership	Tender, merger or buyout proposed but not completed	Tender, merger or buyout completed
Panel A: 73 firms involved in a targeted share repurchase			
No management turnover	5/43	1/4	4/9
CEO turnover only	2/6		0/2
Top management turnover	0/4		4/5
Panel B: 73 control firms selected on the basis of size and industry			
No management turnover	3/42	0/1	1/5
CEO turnover only	1/11	0/1	0/1
Top management turnover	1/9		0/3
Panel C: Difference in relative frequency. A positive entry indicates that the event is more likely at firms that pay greenmail. Yates adjusted χ^2 statistics and p-values are reported in parenthesis			
No management turnover	0.04 (0.11, 0.74)	0.25 (0.70, 0.40)	0.25 (0.11, 0.74)
CEO turnover only	0.24 (0.34, 0.56)		
Top management turnover	–0.11 (0.19, 0.66)		0.80 (2.13, 0.14)

we observe some form of conflict at 57 percent of firms in the greenmail sample and 11 percent of the firms in the control sample. The Yates adjusted χ^2 statistic of 3.13 rejects the null at 8 percent. We observe little difference in the frequency of conflict at those firms that experience neither management turnover nor a change in control.

4.4. Ownership

Managerial ownership plays a central role in models of behavior that characterize managers as agents of shareholders. Ownership aligns the incentives of management with the objectives of shareholders and may be reflected in managerial decisions. In models of greenmail and other forms of defensive activity, the ownership stake represents a management commitment to act in the interest of all shareholders; see Giammarino and Heinkel (1992). The

Table 10

Differences in ownership structure at 73 firms involved in a targeted share repurchase and 73 firms control firms selected on the basis of size and industry. A positive entry indicates that ownership at firms that pay greenmail exceeds ownership at firms in the control sample

Ownership Variable	#g, #c	mean	z-rank	p-val	medians	χ^2	p-val
CEO equity stake	67,61	-155.78	-1.86	0.06	-45.34	0.78	0.38
CEO share of votes	66,61	-1.60	-1.71	0.09	-0.40	0.64	0.42
DO equity stake	67,61	-112.45	-1.15	0.25	-12.67	0.78	0.38
DO share of votes	66,61	-7.06	-1.79	0.07	-4.30	2.29	0.13
Institutional ownership	66,69	2.67	1.48	0.14	6.50	5.41	0.02

ownership stake also represents a block of votes that allows management to enforce its own interest, perhaps at the expense of other shareholders.¹²

In Table 10, we contrast the ownership structure of firms that pay greenmail with the ownership structure of firms from the control sample. Mean ownership by insiders at firms that pay greenmail is less than mean ownership by insiders at firms in the control sample. The non-parametric rank statistics associated with these differences are marginally significant. Differences in median insider ownership run in the same direction. The disparity between the difference of means and the difference of medians in the case of the equity stakes indicates that the mean differences are skewed by a few cases of very large insider ownership.

The median difference in the share of votes controlled by officers and directors, which indicates that managers at firms that engage in defensive activity control fewer votes, is marginally significant. Median institutional ownership at firms that pay greenmail is significantly greater than median institutional ownership at firms in the control sample. These differences do not reflect the influence of the outliers that plague the equity stake variables.

We projected ownership variables onto outcome dummies for managerial turnover and takeover activity. The regression results, which are reported in Appendix B, reveal a very weak cross-sectional relationship between ownership and the status of the firm with respect to managerial turnover and takeover activity. The R^2 statistics from these regressions are extremely low for the sample of firms that pay greenmail, the control sample and the combined sample. The t-statistic associated with the correlation between complete turnover and the equity stake of the CEO and the t-statistic associated with the correlation between complete turnover and the equity stake of officers and directors suggests a statistically significant relationship.

¹² Bhagat and Jefferis (1991) demonstrate that managerial ownership is positively correlated with the introduction of antitakeover charter amendments that are associated with negative wealth effects.

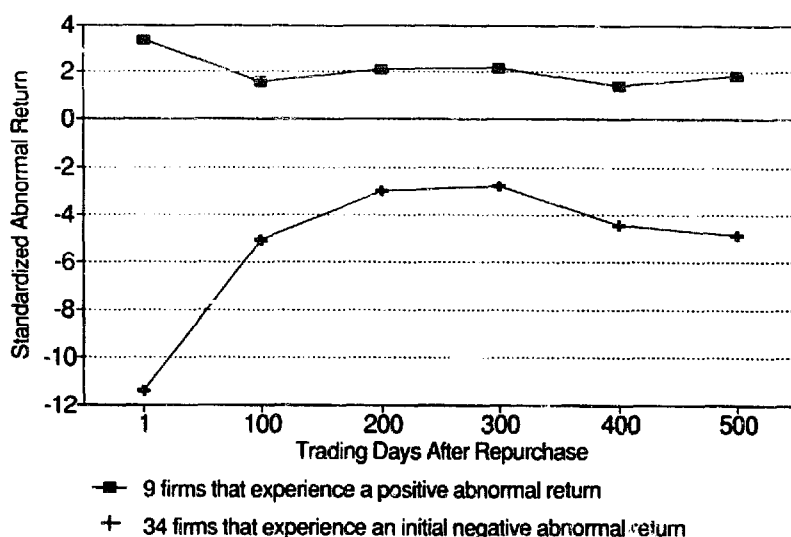


Fig. 1. Standardized abnormal returns conditioned on the initial response to the announcement of greenmail for 43 firms that experience neither managerial turnover nor takeover activity during the two-year period after the repurchase.

But inspection of the regression residuals indicates that this result is attributable to the outliers discussed in the preceding paragraph. This interpretation is consistent with the low R^2 values for the regressions. No other cross-sectional relationships appear to be statistically significant.

4.5. Announcement returns

We have already examined the relationship between announcement returns and the fate of managers, and the relationship between announcement returns and takeover activity, and found these relationships to be extremely weak. This raises the issue of what, if any information, may be extracted from the cross-section of announcement returns. In Fig. 1, we address this issue by considering the behavior of standardized abnormal returns for the 43 firms in our sample that experience neither managerial turnover nor takeover activity subsequent to the payment of greenmail. By focusing on this sample, we eliminate from the abnormal return series the influence of some major events. This group may also be taken to represent “entrenched management.”

We have partitioned the sample into a group of 9 firms that experience positive abnormal returns at the announcement of the greenmail transaction and a group of 34 firms that realize negative announcement returns. The evidence presented in the figure is consistent with the hypothesis that there is information in the announcement returns of individual firms, and consistent with the hypothesis that shareholder perception of greenmail varies across

firms. If our abnormal return series were biased by some sort of estimation error, we would expect the series to drift upwards for the positive announcement firms and downwards for the negative announcement firms during the 500 trading days subsequent to the repurchase. This is not in fact the case. The heterogeneity in the abnormal returns persists two years after the repurchase date: The difference in the two-series is statistically significant at each of the six points in time that appear in the figure. This suggests that the payment of greenmail is, in some cases, well-received.¹³

It is possible to present a formal test of the hypothesis that the payment of greenmail has a heterogeneous impact on the wealth of shareholders. Let δ_i denote the wealth effect at firm i . Announcement returns r_i are the sum of δ_i and background noise ϵ_i . The variance of abnormal returns outside of the announcement period is $\sigma_i^2 = E[\epsilon_i^2]$. Under the maintained hypothesis that there is no shift in the level of background noise at announcement, the sample variance of abnormal returns at announcement is

$$E(\delta_i - \delta)^2 + \sigma^2.$$

If $\delta_i = \delta$ for every firm, then the sample variance of abnormal returns should not be affected by the payment of greenmail. When the event has a heterogeneous impact on shareholder wealth, we do observe a shift in variance. We reject the null hypothesis of equal variance for the announcement return of firms that pay greenmail and the announcement returns of firms in the control sample, both unconditionally and for the group of firms that experience neither takeover activity nor management turnover subsequent to the payment of greenmail. Results are reported in Appendix C.

5. Summary and conclusions

Our interpretation of the data is constrained by the fact that neither the motivation of managers who pay greenmail nor the impact of greenmail on the firm is observable. We may identify the effect of greenmail on the firm only if we know what would have occurred had the greenmail payment not been made. Without this information, inference is based on observed differences between the experience of firms that pay greenmail and the experience of a control sample. The value of the inference depends on whether the control sample is informative.

The evidence that we have considered does afford some characterization

¹³ We also consulted the *WSJ* to determine if there were any unrelated news item that might explain the positive announcement return for the nine firms that had such returns. We did not find any such news items.

of both the cause and the impact of greenmail. The portrayal of firms that engage in this form of takeover defense as poor performers seeking shelter from market discipline is inconsistent with the facts since the performance of firms that pay greenmail is no worse than the performance of firms of similar size that operate in the same industry, either prior to the repurchase or following the repurchase. The fate of managers at firms that pay greenmail appears to reflect their performance, as does the occurrence of takeover activity. We are unable to judge whether managers pay greenmail with the intent of saving their jobs, but the empirical evidence suggests that the payment of greenmail is not an effective means of extending job tenure. The frequency of takeover activity during the post-repurchase period is consistent

Appendix A

The distribution of available observations for cash-flow-based ROA and the growth rate of cash-flow-based ROA. The observations are used in the regression results reported in table 7 and in the regression results reported in Appendix B. The first entry in the cell is for the number of observations for the greenmail sample and the second for the control sample

	No change in ownership	Tender, merger or buyout proposed but not completed	Tender, merger or buyout completed
Panel A: The distribution of observations for cash-flow-based ROA during the three-year period beginning with the year of the repurchase and ending with the repurchase. These are used in the regression results reported in Panel A of Table 7			
No management turnover	36, 35	4, 1	9, 4
CEO turnover only	6, 9		
Top management turnover	3, 7		4, 2
Panel B: The distribution of observations for cash-flow-based ROA during the three-year period beginning with the year of the repurchase and ending two years after the repurchase. These are used in the regression results reported in Panel B of Appendix B			
No management turnover	37, 35	4, 1	
CEO turnover only	6, 8		
Top management turnover	2, 8		
Panel C: The distribution of observations for the growth rate of cash-flow-based ROA during the three-year period beginning with the year of the repurchase and ending with the repurchase. These are used in the regression results reported in Panel B of Table 7			
No management turnover	36, 35	4, 1	9, 4
CEO turnover only	6, 9		
Top management turnover	3, 7		4, 2
Panel D: The distribution of observations for the growth rate of cash-flow-based ROA during the three-year period beginning with the year of the repurchase and ending two years after the repurchase. These are used in the regression results reported in Panel E of Appendix B			
No management turnover	37, 35	4, 1	
CEO turnover only	6, 8		
Top management turnover	2, 8		

Appendix B (continued)

Sample	Nobs	Constant	Partial Turnover	Complete Turnover	Attempted Takeover	Completed Takeover	Adjusted R ²
Full	105	–0.68 (–0.59)	–0.91 (–0.33)	–4.17 (–1.30)	1.84 (0.44)	0.65 (0.11)	–0.03
Greenmail	51	–0.60 (–0.56)	–1.61 (–0.56)	3.55 (0.75)	–0.45 (–0.13)	–5.35 (–0.82)	–0.06
Control	54	–0.53 (–0.25)	–1.12 (–0.24)	–6.71 (–1.39)	6.24 (0.69)	–3.07 (–0.25)	–0.03
Difference		–0.07 (–0.03)	–0.49 (–0.09)	10.26 (1.25)	–6.69 (–0.74)	–2.28 (–0.16)	
Panel F: Growth rate of cash-flow-based ROA during the five-year period centered on the repurchase							
Full	102	–1.64 (–1.17)	–2.33 (–0.70)	–11.92 (–2.96)	3.09 (0.62)	4.59 (0.63)	0.05
Greenmail	50	–1.09 (–0.80)	–1.13 (–0.31)	0.54 (0.09)	2.06 (0.48)	–4.10 (–0.50)	–0.07
Control	52	–1.96 (–0.79)	–3.39 (–0.61)	–16.56 (–2.74)	4.90 (0.46)	–3.74 (–0.25)	
Difference		0.87 (0.31)	2.26 (0.33)	17.09 (1.72)	–2.84 (–0.26)	–0.36 (–0.02)	
Panel G: Two day announcement returns							
Full	145	–1.40 (–2.22)	0.44 (0.31)	–0.03 (–0.02)	–3.79 (–1.51)	–1.43 (–1.05)	0.11
Greenmail	73	–3.50 (–3.25)	0.27 (0.10)	–0.81 (–0.29)	–4.62 (–1.22)	–0.17 (–0.08)	–0.04
Control	72	0.75 (1.46)	–0.88 (–0.81)	–0.47 (–0.41)	0.56 (0.23)	–1.13 (–0.87)	–0.04
Difference		–4.25 (–3.53)	1.15 (0.41)	–0.34 (–0.12)	–5.18 (–1.02)	0.97 (0.35)	
Panel H: Announcement returns from repurchase through resolution							
Full	145	–1.86 (–0.20)	34.85 (1.67)	2.31 (0.11)	–32.68 (–0.89)	16.62 (0.83)	0.00
Greenmail	73	–2.11 (–0.19)	36.40 (1.28)	–11.97 (–0.42)	–77.29 (–1.99)	6.85 (0.31)	0.04
Control	72	–0.68 (–0.05)	25.19 (0.81)	12.72 (0.38)	60.68 (0.85)	42.62 (1.15)	–0.02
Difference		–1.43 (–0.08)	11.21 (0.26)	–24.69 (–0.56)	–137.98 (–1.77)	–35.78 (–0.85)	
Panel I: CEO equity stake							
Full	128	4.23 (3.40)	0.14 (0.05)	4.73 (1.60)	–1.26 (–0.27)	–3.87 (–1.47)	0.00
Greenmail	67	2.97 (1.54)	0.25 (0.05)	13.03 (2.67)	–1.15 (–0.18)	–5.16 (–1.33)	0.05
Control	61	6.00 (4.06)	–0.94 (–0.30)	–2.86 (–0.86)	–0.22 (–0.03)	–3.32 (–0.96)	–0.04

with the interpretation of greenmail as an effective means of deterring all takeover activity only if these firms were more likely to be taken over than other firms involved in a 13-D filing prior to the greenmail payment.

Greenmail has, for the most part, disappeared from the financial land-

Appendix B (continued)

Sample	Nobs	Constant	Partial Turnover	Complete Turnover	Attempted Takeover	Completed Takeover	Adjusted R ²
Difference		-3.03 (-1.23)	1.19 (0.21)	15.89 (2.69)	-0.93 (-0.09)	-1.84 (-0.34)	
Panel J: CEO share of voting rights							
Full	127	0.05 (5.30)	-0.01 (-0.27)	-0.02 (-0.78)	-0.01 (-0.16)	-0.01 (-0.29)	-0.03
Greenmail	66	0.04 (3.45)	-0.01 (-0.24)	-0.04 (-1.46)	0.00 (0.09)	0.02 (1.06)	-0.02
Control	61	0.06 (3.93)	-0.01 (-0.27)	-0.00 (-0.11)	-0.01 (-0.15)	-0.04 (-1.08)	-0.05
Difference		-0.02 (-1.22)	0.00 (0.05)	-0.04 (-0.82)	0.01 (0.19)	0.06 (1.52)	
Panel K: Director and officer equity stake							
Full	127	2.17 (5.49)	-0.85 (-0.95)	-0.14 (-0.15)	-0.98 (-0.66)	-0.65 (-0.77)	-0.02
Greenmail	66	1.11 (2.96)	-0.16 (-0.16)	1.75 (1.85)	0.05 (0.04)	0.16 (0.21)	0.00
Control	61	3.40 (4.84)	-1.75 (-1.19)	-2.21 (-1.40)	-1.70 (-0.55)	-1.84 (-1.12)	0.01
Difference		-2.29 (-2.96)	1.59 (0.88)	3.96 (2.14)	1.75 (0.57)	2.00 (1.18)	
Panel L: Director and officer voting rights							
Full	127	0.16 (8.31)	0.04 (0.99)	-0.06 (-1.30)	-0.06 (-0.91)	-0.04 (-0.99)	0.01
Greenmail	66	0.11 (6.12)	0.05 (0.97)	-0.07 (-1.58)	-0.01 (-0.22)	0.02 (0.57)	0.00
Control	61	0.20 (6.07)	0.03 (0.37)	-0.07 (-0.87)	-0.11 (-0.77)	-0.10 (-1.34)	-0.01
Difference		-0.09 (-2.49)	0.02 (0.23)	-0.01 (-0.08)	0.10 (0.68)	0.13 (1.54)	
Panel M: Institutional ownership							
Full	145	0.20 (11.02)	-0.03 (-0.74)	-0.02 (-0.45)	-0.05 (-0.67)	0.01 (0.21)	-0.02
Greenmail	73	0.19 (7.97)	0.04 (0.67)	0.10 (1.61)	-0.02 (-0.30)	0.01 (0.21)	-0.00
Control	72	0.22 (7.91)	-0.07 (-1.33)	-0.10 (-1.69)	-0.06 (-0.48)	-0.02 (-0.35)	0.01
Difference		-0.03 (-0.71)	0.12 (1.36)	0.20 (2.30)	0.04 (0.25)	0.03 (0.41)	

Appendix C

A test of variance equality for the announcement returns of firms that pay greenmail and the announcement returns of firms in the control sample. We report tests both unconditionally, and for the group of firms that experience neither management turnover nor takeover activity subsequent to the repurchase. The first test statistic is a parametric test for variance equality. The second test statistic is a nonparametric rank statistic for the same hypothesis.

Sample	χ^2	p-val	χ^2	p-val
Unconditional	4.51	0.00	2.39	0.02
Conditional	3.94	0.00	1.33	0.18

scape.¹⁴ But the financial circumstances and divergence of objectives associated with the payment of greenmail is characteristic of other forms of defensive activity as well. We close with two observations about targeted repurchases, which we view as representative of a broader class of defensive activity.¹⁵

The first concerns the efficiency of the corporation as an institution – specifically, the rules governing takeover activity that are embedded in the corporate charter. A targeted repurchase is easy to define and verify, and may therefore be proscribed by a charter provision. Indeed, a number of firms have amended their charters in this manner, see Bhagat and Jefferis (1991). But these provisions are by no means universal, and corporate boards generally enjoy significant freedom in dealing with outside bids to gain control of the firm. If the corporation is an efficient institution, then there should be some explanation for the authority that is granted to boards in matters such as the payment of greenmail. The authority enjoyed by corporate boards and the willingness of shareholders to grant that authority are inconsistent with the hypothesis that all defensive activity is contrary to the interest of shareholders.

Our second observation is that a targeted repurchase is costly to corporate

¹⁴ The 1986 Tax Reform Act imposed a 25 percent tax on greenmail payments. In addition, a number of firms, including Walt Disney and Bally Manufacturing, have settled shareholder lawsuits filed in response to greenmail. In 1989, Disney and Saul Steinberg paid \$45 million to shareholders to settle litigation over a 1984 targeted repurchase involving a premium of \$59.7 million. Several months later, Bally and Donald Trump paid \$6.5 million to settle litigation related to a 1987 greenmail payment containing a premium of \$18 million.

¹⁵ Variations on the theme include defensive repurchases, which are examined by Bagnoli, Gordon and Lipman (1989), and the issuance of transferable put rights, the subject of recent work by Gay, Kale and Noe (1989). These actions are distinguished from greenmail in that they encourage *all* shareholders who perceive the value of the firm in the hands of incumbent management to be low to sell their control rights, whereas greenmail is directed toward a particular shareholder.

Appendix B (continued)

Estimates calculated under the maintained hypothesis that estimated coefficients are equal across the two samples

Dependent Variable	Nobs	Constant	Partial Turnover	Complete Turnover	Attempted Takeover	Completed Takeover	Greenmail	Adjusted R ²	F-stat ^a (p-val)
Panel N: Estimated coefficients from regressions of cash-flow-based ROA on indicators for firm experience with respect to management turnover, change in ownership through either a takeover or buyout, and targeted share repurchases									
Compound ROA [-2.0]	123	0.36 (12.53)	0.00 (0.01)	-0.20 (-3.71)	-0.06 (-0.83)	0.13 (2.76)	-0.02 (-0.59)	0.10	1.08 (0.37)
Compound ROA [-2.2]	101	0.56 (11.28)	0.00 (0.08)	-0.49 (-4.53)	-0.13 (-1.02)	0.37 (1.91)	-0.00 (-0.07)	0.15	0.55 (0.70)
Compound ROA [0.2]	105	0.31 (8.71)	-0.00 (-0.05)	-0.33 (-4.40)	-0.08 (-0.87)	0.20 (1.43)	0.01 (0.37)	0.13	0.50 (0.73)
Panel O: Estimated coefficients from regressions of growth in cash-flow-based ROA on indicators for firm experience with respect to management turnover, change in ownership through either a takeover or buyout, and targeted share repurchases									
Compound ROA growth [-2.0]	123	-0.02 (-2.09)	-0.00 (-0.41)	-0.04 (-2.05)	0.01 (0.34)	0.00 (0.01)	0.02 (1.55)	0.02	1.16 (0.33)
Compound ROA growth [-2.2]	102	-0.02 (-1.58)	-0.02 (-0.60)	-0.11 (-2.81)	0.02 (0.52)	0.03 (0.52)	0.02 (1.07)	0.05	0.91 (0.46)
Compound ROA growth [0.2]	105	-0.00 (-0.56)	-0.00 (-0.30)	-0.04 (-1.25)	0.01 (0.42)	0.00 (0.08)	0.00 (0.18)	-0.02	0.62 (0.65)
Panel P: Estimated coefficients from regressions of stock market performance on indicators for firm experience with respect to management turnover, change in ownership through either a takeover or buyout, and targeted share repurchases.									
Announcement Return ^b	145	0.67 (0.89)	-0.22 (-0.16)	-0.56 (-0.39)	-2.98 (-1.25)	-0.49 (-0.37)	-4.16 (-4.34)	0.11	0.34 (0.85)
Announcement to Resolution	145	0.04 (0.41)	0.32 (1.55)	0.00 (0.02)	-0.30 (-0.81)	0.19 (0.97)	-0.13 (-0.91)	0.00	1.04 (0.40)

^a The test statistic for the null hypothesis that regression coefficients are the same in the greenmail sample and control sample is distributed as F(4, T-9) where T is the number of observations available for estimation.

^b Estimated coefficients have been multiplied by 100 to facilitate comparison.

officers both directly, to the extent that they are shareholders, and indirectly, in terms of relations with investors. Presumably, the officers are obtaining something in return. Our evidence is inconsistent with the conjecture that the *quid pro quo* is job security. The possibility that defensive activity serves the interest of shareholders warrants further consideration, and is not inconsistent with the evidence from announcement returns.

References

- Bagnoli, M., R. Gordon, and B.L. Lipman, 1989, Stock repurchase as a takeover defense, *Review of Financial Studies* 2, 423–443.
- Baron, D.P., 1983, Tender offer and management resistance, *Journal of Finance* 38, 331–342.
- Bhagat, S. and R.H. Jefferis, 1991, Voting power in the proxy process: The case of antitakeover charter amendments, *Journal of Financial Economics* 30, 193–226.
- Bishop, Y., S.E. Fienberg and P.W. Holland, 1976, *Discrete multivariate analysis*, MIT Press.
- Bradley, M., A. Desai and E.H. Kim, 1983, The rationale behind interfirm tender offers: Information or synergy? *Journal of Financial Economics* 11, 183–206.
- Bradley, M. and L.M. Wakeman, 1983, The wealth effects of targeted share repurchases, *Journal of Financial Economics* 11, 301–328.
- Conover, W.J., 1980, *Practical nonparametric statistics*, John Wiley and Sons.
- Dann, L.Y. and H. DeAngelo, 1983, Standstill agreements, privately negotiated stock repurchases, and the market for corporate control, *Journal of Financial Economics* 11, 275–300.
- Dodd, P. and J.B. Warner, 1983, On corporate governance: A study of proxy contests, *Journal of Financial Economics* 11, 401–438.
- Giammarino, R. and R. Heinkel, 1992, The evolution of firm value and the allocative role of greenmail, Working paper, University of British Columbia.
- Holderness, C.G. and D.P. Sheehan, 1988, Raiders or saviors? The evidence on six controversial investors, *Journal of Financial Economics* 14, 555–580.
- Jarrell, G.A. and M. Ryngaert, 1984, The impact of targeted share repurchases (greenmail) on stock prices, Working paper (U.S. Securities and Exchange Commission, Washington, DC).
- Kale, J.R., T.H. Noe and G.D. Gay, 1989, Share repurchase through transferable put rights: Theory and case study, *Journal of Financial Economics* 25, 141–160.
- Klein, A. and J. Rosenfeld, 1988, Targeted share repurchases and top management changes, *Journal of Financial Economics* 20, 493–506.
- Maddala, G.S., 1983, *Limited-dependent and qualitative variables in econometrics*, Cambridge University Press.
- McFadden, Daniel, 1989, A method of simulated moments for estimation of discrete response models without numerical integration, *Econometrica* 57, 995–1026.
- Mikkelson, W.H. and R.S. Ruback, 1985, An empirical investigation of the interfirm equity investment process, *Journal of Financial Economics* 14, 523–554.
- Mikkelson, W. and R. Ruback, 1986, Targeted share purchases and common stock returns, Unpublished working paper (University of Oregon, Eugene, OR, and Harvard University, Cambridge, MA).
- Morck, R., A. Shleifer and R. Vishny, 1989, Alternative mechanisms for corporate control, *American Economic Review* 79, 842–852.
- Shleifer, A. and R. Vishny, 1986, Greenmail, white knights and shareholders interest, *Rand Journal of Economics* 17, 293–309.