Managerial Performance, Bid Premiums, and the Characteristics of Takeover Targets[*]

Chao Chen

Center for China Finance and Business Research and Department of Finance
California State University, Northridge, CA 91330-8379, U.S.A.
School of Economics and Management, Tsinghua University
Beijing, 100084, China

and

Philippe Cornu

Department of Finance, University of Geneva, Geneva, Switzerland

This paper tests the inefficient performance hypothesis and the pre-bid run-up premium hypothesis of hostile takeovers. The long-term and short-term performance and the characteristics of friendly and hostile takeovers are compared. We find no indications of poor target performance over the five years prior to the takeover announcement. However, there is evidence that hostile takeovers do perform a correction for target managerial failure. This paper also finds that the type of offer is strongly related to the general trend of the M&A market and the size, and industry of the target firm. Higher takeover premiums and cash offers are more often associated with hostile offers. Moreover, the odds for hostile offers to incur competition among bidders and to be unsuccessful are significantly higher than that for friendly offers. © 2002 Peking University Press

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1. INTRODUCTION

Most of the time, when an unsolicited offer is made on a target firm, it is addressed privately to the target management. If the target management refuses the offer, the bidder can sweeten or cancel the private offer, or publicly launch a hostile takeover directly addressed to the target stockholders. The inefficient target performance prior to the bid is considered one of the major motives in the literature to explain hostile takeovers. Bhide (1993) reports that the main expected benefits for hostile bidders are the improvement of efficiency by restructuring the target firm, whereas the expected benefits for friendly bidders lie in the building or redeployment of the bidder corporate portfolio. Furthermore, the type of offer may depend on various financial characteristics of both target and bidder firms.[1] However, the stock price of target firm tends to rise before the announcement of the first takeover bid, and the pre-bid runups cost the bidder to pay more for the target firm. Schwert (1996) examines the relationship between pre-bid runups and post-bid markups over the period 1975-91 and discovers little substitution between the runup and the markup.[2]

Walking (1985) investigates the importance of bid premiums, managerial resistance, share ownership, and solicitation fees on the outcome in tender offers from 1972 to 1977. He finds that the bid premium in tender offers is a strong indicator for the successful completion of the offer. Moreover, increased bid premium and the payment of solicitation fees tend to increase the probability of tender offer success. Lang, Stulz, and Walking (1989) examine both bidder and target abnormal returns and Tobin's q ratios of successful tender offers. Their findings are consistent with the view that takeovers may create value from the better use of the resources of poorly managed targets.

This paper empirically tests the hypotheses, including the inefficient target performance hypothesis and the target pre-bid runup premium hypothesis, behind the decision to launch a hostile takeover and the premium to pay the takeover target. The inefficient target management hypothesis justifies the existence of hostile takeovers as being the correction for managerial failure. In other words, hostile bidders perceive poor performance of the target management and are willing to offer high bid premiums to acquire the target firm because they expect higher profits with a more efficient management. The low target pre-bid runup premium hypothesis states that if the target pre-bid runup premium is lower for hostile than for friendly takeovers, then hostile bidders have the possibility to make a

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[1]For example, the distribution of ownership and the structure of capital of both target and bidder firms are expected to have a significant impact on the type of offer.

[2]Schwert (1996) shows that the average runup is about half the premium paid to successful takeover targets.

higher bid premium to reach the same level of total premium as for an otherwise identical friendly offer.

The impact of a hostile offer on the probability of having a competitive bidding and a successful takeover attempt is also studied. Furthermore, this paper compares the characteristics and consequences between hostile and friendly takeover targets. This paper uses a more recent sample of corporate takeovers from 1990 to 1995, which covers the period of both a recession and a large expansion of the US merger and acquisition market. This paper is divided into the following four sections. Section 2 presents the data of this study and section 3 investigates the hypotheses and causes of hostile takeovers. Section 4 examines the immediate consequences of hostile offers. Finally, the conclusion is presented in Section 5.

2. DATA

The initial sample covers all the takeover attempts that occurred during the period 1990 to 1995 with offered prices of $100 million or higher, as listed in Mergerstat Review. For an acquisition to be listed in the Mergerstat Review, both the offered price and the target net earnings have to be available. Statutory mergers are not included in the roster. Finally, the Wall Street Journal Index has been used to complete the missing information for each transaction. The initial sample includes 684 takeover attempts, successful or not.

From the initial sample, 75 US takeover attempts are hostile. Excluding multiple attempts for the same target in competitive takeovers, and targets with no available CRSP data, 64 US hostile takeover attempts remain. The target abnormal returns computed for the 64 US hostile takeovers are compared to the abnormal returns of a control group of 64 US friendly takeovers. The control group is matched by industry (Mergerstat Review industry category), size (price offered), and year (year of the announcement of the takeover) with the targets of hostile bids.[3]

3. INEFFICIENT TARGET MANAGEMENT AND PRE-BID RUNUP PREMIUM

3.1.   Inefficient Target Management Hypothesis

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[3]All the target industries of the control group correspond perfectly with targets involved in hostile takeovers. However, despite our efforts to match the target characteristics of hostile and friendly takeovers, the control group has a larger proportion of successful offers (82.8% vs. 59.4%) and smaller target firms (average price: $1,347.5 million vs. $1,807.3 million). This is because hostile takeovers are significantly associated with a larger proportion of unsuccessful offers and with larger target firms than friendly offers.

The inefficient target management hypothesis indicates that hostile bidders perceive poor performance of the target management and are willing to offer high bid premiums to acquire the target firm because they expect higher profits with a more efficient management.[4] This paper empirically investigates the inefficient target management hypothesis by examining the long-term target abnormal returns. Specifically, the long-term abnormal returns of the target stock are computed over the five years preceding the takeover announcement, with daily data. More precisely, t_0 is defined as the year of the announcement of the takeover, and the daily target abnormal returns are estimated over the event period from year t_{-5} through year t_{-1}. The target abnormal returns, ε_{it}, are computed as the difference between the return on the stock i and the market return:

$$\hat{\varepsilon}_{it} = R_{it} - R_{mt}. \tag{1}$$

We did not use the standard two-step event study methodology, because the period under analysis is far too lengthy to meet the crucial hypothesis of the traditional event study methodology that the market model parameters are constant over time.[5]

The average abnormal returns, $A\hat{A}R_t$, and the cumulative average abnormal returns, $CA\hat{A}R_T$, are calculated as follows:[6]

$$A\hat{A}R_t = \frac{1}{N} \sum_{i=1}^{N} \hat{\varepsilon}_{it}, \tag{2}$$

$$CA\hat{A}R_T = \sum_{t}^{T} A\hat{A}R_t. \tag{3}$$

with $N = 64$ firms and $T = 1020$ days. If the target performance is poor, the abnormal returns (AAR_t and $CAAR_t$) must be significantly below zero. Figure 1 exhibits the target $CAAR_t$ for both hostile and friendly takeovers.

Figure 1 shows that the $CAAR_t$ for targets involved in hostile takeovers are much higher than zero. This finding invalidates a priori the inefficient target management hypothesis because the performance of target firms involved in hostile takeovers is much higher than the performance of the market. However, over the period from t_{-38} to t_{-12} month prior

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[4]See Franks and Mayer (1996), Healey, Palepu, and Ruback (1992), and Schwert (1999) for more discussions related to managerial performance and takeovers.

[5]Note that equation (1) is equivalent to a market model with $\alpha_i = 0$ and $\beta_i = 1$, as used notably in Franks and Mayer (1996).

[6]The $A\hat{A}R_t$ and $CA\hat{A}R_t$ are denoted AAR_t and $CAAR_t$ respectively in what follows, to simplify the notation.

FIG. 1. $CAAR_t$ over the period t_{-72} to t_{-12} month. The figure plots the daily cumulative average abnormal returns ($CAAR_t$) in percentage for both target firms involved in hostile or in friendly takeovers. The sample size is 64 targets involved in hostile offers and 64 comparable targets involved in friendly offers.
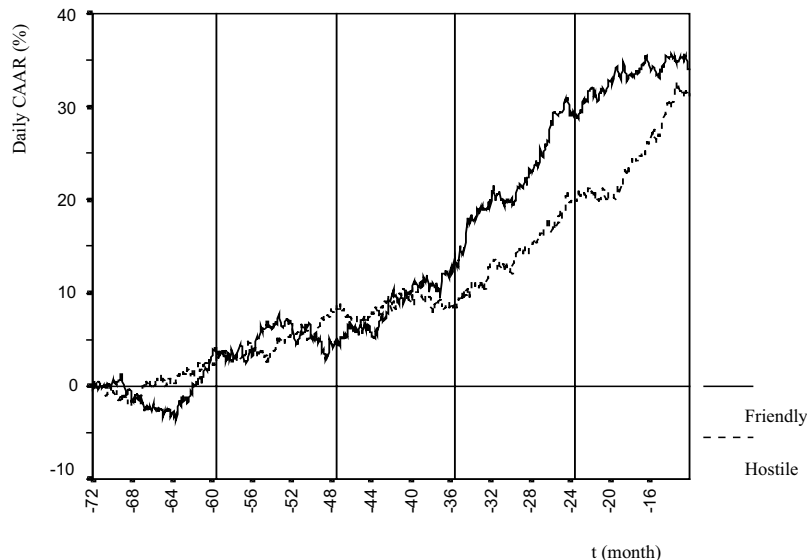
to the announcement month, the performance of the control group of targets involved in friendly offers is higher than for targets involved in hostile takeovers. It seems that hostile takeovers perform a correction for target managerial failure when compared to the performance of comparable friendly targets. To test whether the target abnormal returns involved in hostile and in friendly offers are statistically significantly different, the mean of AAR_t, the $CAAR_t$ and the t-statistics are computed for different sub-periods and reported in Table 1.

Table 1 shows that the target abnormal returns for both hostile and friendly offers over the five years prior to the announcement year are roughly divided into two sub-periods: first, during the years minus five to minus three (i.e. t_{-72} to t_{-37} month), the abnormal returns are not statistically different from zero. In other words, both targets in hostile and friendly takeovers do not outperform or underperform the market. Second, over the period from t_{-36} to t_{-12} month preceding the month of announcement, the target abnormal returns become statistically different from zero: both targets involved in hostile and friendly takeovers significantly outper-

TABLE 1.

Daily abnormal returns over the period t_{-72} to t_{-12} month

| | Hostile offer | | | Friendly offer | | | |
| | Mean AAR_t | t-stat | $CAAR_t$ | Mean AAR_t | t-stat | $CAAR_t$ | t-stat for equal Means |
	(%)	(2-sided)	(%)	(%)	(2-sided)	(%)	
$t_{-72} - t_{-61}$	0.01	0.7798	2.85	0.01	0.5014	2.00	0.1578
$t_{-60} - t_{-49}$	0.02	1.2830	4.60	0.01	0.2438	1.13	0.5908
$t_{-48} - t_{-37}$	0.01	0.2564	1.06	0.05	1.6110	9.18	-1.1554
$t_{-36} - t_{-25}$	0.05	2.4542*	10.26	0.09	3.2454**	18.12	-1.1266
$t_{-24} - t_{-12}$	0.06	3.1502**	12.64	0.02	0.8176	3.66	1.4949
$t_{-72} - t_{-12}$	0.03	3.5809**	31.41	0.03	3.0909**	34.09	-0.1902
$t_{-38} - t_{-12}$	0.05	3.6352**	21.91	0.05	3.0328**	23.21	$-13.34**$

∗ Significant at $\alpha = 0.05$ level.

∗∗ Significant at $\alpha = 0.01$ level.

This table presents the means, the t-statistics associated to the mean and the target cumulative average abnormal returns ($CAAR_t$) computed over different sub-periods expressed in months before the announcement month of the takeover for both targets involved in hostile and friendly takeovers. The last column presents the t-statistic to test the difference of means of AAR_t between hostile and friendly takeovers. This two-sample t-statistic to test for equal means of AAR_t, computed as:

$$t = \frac{\overline{x}_H - \overline{x}_F}{\sqrt{\frac{s_H^2}{n_H} + \frac{s_F^2}{n_F}}}$$

where $\overline{x}_i$ is the mean for takeovers of type i, $\forall i \in \{Hostile, Friendly\}$, s_i is the standard deviation for takeovers of type i, n_i is the size of the sample for type i, and $df = \min(n_H C1; n_F C1)$. The sample size is 64 targets involved in hostile offers and 64 comparable targets involved in friendly offers.

form the market.[7] Generally, over the five years prior to the announcement year, the mean of AAR_t is significantly higher than zero for both hostile and friendly offers. This confirms the rejection of the inefficient target management hypothesis, using the market performance as the benchmark.

The question now turns to whether the target firms involved in hostile takeovers generate significantly lower abnormal returns than their peers involved in friendly offers. The difference of AAR_t between the targets involved in hostile and friendly offers from t_{-38} to t_{-12} month is tested and reported in Table 1. Roughly, during the period from t_{-38} to t_{-12} month preceding the announcement month, the AAR_t of targets involved in hostile takeovers are statistically significantly lower than the AAR_t of their peers involved in friendly offers. Consequently, hostile takeovers appear to be a correction for the target management failure when compared to the performance of comparable friendly targets.

To summarize, targets involved in hostile takeovers are found to significantly outperform the market but also significantly underperform their peers involved in friendly takeovers prior to the takeover announcement. The inefficient target management hypothesis is thus rejected with respect to the market performance, but strongly supported with respect to the performance of comparable friendly targets.

3.2. Pre-bid Runup Premium Hypothesis

The low target pre-bid runup premium hypothesis states that if the target pre-bid runup premium is lower for hostile than for friendly takeovers because hostile bidders are inherently less expected and disclose less information prior to the offer than friendly bidders, then hostile bidders have the possibility to make a higher bid premium to reach the same level of total premium as for an otherwise identical friendly offer. To test the pre-bid runup premium hypothesis, we examine the short-term abnormal returns of takeover targets.

To analyze the low target pre-bid runup premium hypothesis, a standard two-step event study methodology is used to compute the abnormal target stock returns over a short period around the announcement date. The event date t_0 is the announcement day of the takeover in financial publications. The parameters of the market model (4) are computed over an estimation period, from t_{-180} through t_{-91} days before the announcement date:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, \tag{4}$$

where R_{it} is the realized return of the common stock of target firm i at time t, $\alpha_i + \beta_i R_{mt}$ is the expected return of stock i (given R_{mt}), R_{mt} is

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[7]The only exception is for the targets of friendly takeovers during the period t_{-24} to t_{-12}.

FIG. 2. $CAAR_t$ over the period t_{-90} to t_{+90} day. The figure plots the daily cumulative average abnormal returns ($CAAR_t$) in percentage for both target firms involved in hostile or in friendly takeovers. The sample size is 64 targets involved in hostile offers and 64 comparable targets involved in friendly offers.
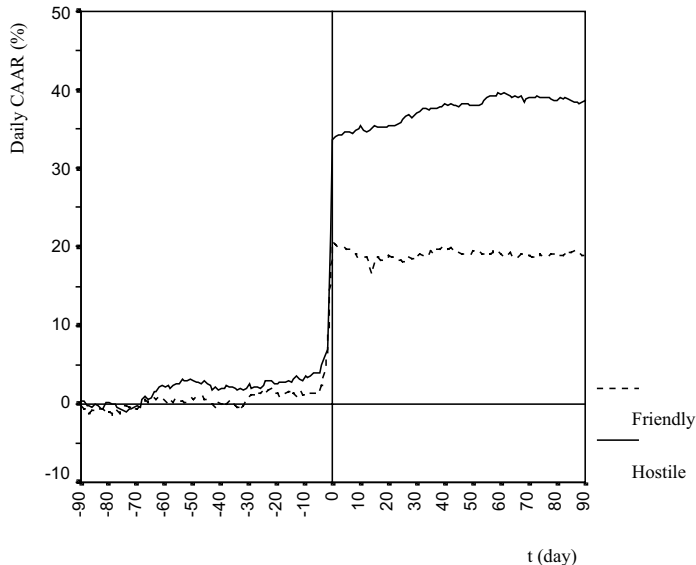
the return of the market index at time t, and ε_{it} is the abnormal return of stock i, with $E(\varepsilon_{it}|R_{mt}) = 0$ and $cov(\varepsilon_i, \varepsilon_j) = 0$ for $i \neq j$ during the estimation period.[8]

The abnormal returns for the stock i at time t are computed over the event period, from t_{-90} through t_{+90} days around the announcement date, as:

$$\hat{\varepsilon}_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{5}$$

The target average abnormal returns, AAR_t, and the target cumulative average abnormal return, $CAAR_t$, are then calculated (over the event period) with equations (2) and (3) respectively. If the low pre-bid runup premium hypothesis is verified, the abnormal returns of target firms involved in hostile takeovers should be lower than that of their peers involved in friendly offers prior to the announcement date. Figure 2 reports the $CAAR_t$ for both targets involved in hostile and friendly takeovers. Figure 2 exhibits that, from roughly t_{-60} through t_{+90}, the $CAAR_t$ of targets associated to

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[8]Although this methodology supposes implicitly the validity of the market model (see Brown and Warner, 1980 and 1985), Franks, Harris and Mayer (1988) and Salinger (1992) indicate that the choice of the benchmark has no crucial impact on the results of the event study.

TABLE 2.

Daily abnormal returns over the period t_{-10} to t_{+10} day

	Hostile offer		Friendly offer	
	AAR_t	$CAAR_t$	AAR_t	$CAAR_t$
t_{-10}	0.48	0.48	−0.18	−0.18
t_{-9}	−0.19	0.29	0.21	0.03
t_{-8}	0.27	0.56	−0.02	0.02
t_{-7}	0.35	0.91	0.11	0.13
t_{-6}	−0.03	0.88	0.01	0.14
t_{-5}	−0.04	0.84	−0.06	0.08
t_{-4}	1.16	2.00	1.00	1.08
t_{-3}	0.88	2.88	1.87	2.95
t_{-2}	1.04	3.92	1.82	4.77
t_{-1}	14.96	18.88	10.25	15.02
t_0	11.71	30.59	4.43	19.45
t_{+1}	0.48	31.07	−0.43	19.02
t_{+2}	0.10	31.17	−0.08	18.94
t_{+3}	−0.02	31.14	−0.20	18.74
t_{+4}	0.38	31.5	−0.02	18.72
t_{+5}	0.06	31.58	−0.29	18.43
t_{+6}	−0.02	31.56	−0.06	18.37
t_{+7}	−0.09	31.47	−0.15	18.23
t_{+8}	0.32	31.79	−0.43	17.80
t_{+9}	0.27	32.06	−0.47	17.33
t_{+10}	0.30	32.36	0.14	17.47

This table presents the target average abnormal returns (AAR_t) and target cumulative average abnormal returns ($CAAR_t$) computed daily from t_{-10} days prior to the takeover announcement until t_{+10} after the takeover announcement. The sample size is 64 targets involved in hostile offers and 64 comparable targets involved in friendly offers.

hostile takeovers is higher than for their peers in friendly takeovers. Thus, the low pre-bid runup premium hypothesis seems invalidated. To analyze the statistical significance of the differences observed in Figure 2 between targets involved in hostile takeovers and targets involved in friendly takeovers, the AAR_t and $CAAR_t$ are reported in Table 2.

Table 2 shows that the $CAAR_t$ over the period (t_{-3} to t_{-2}) for hostile offers is almost half of the $CAAR_t$ for friendly offers (1.92% vs. 3.69%). This difference tends to support the low pre-bid run-up premium hypothesis and may be due to better market anticipation for friendly offers, to

information disclosures or to insider trading. Finally, as expected, the bid premium computed over the period (t_{-1} to t_0) is much higher for hostile takeovers than for friendly offers (26.67% vs. 14.68%). In general, there is no overwhelming evidence to accept or reject the low pre-bid runup premium hypothesis.

3.3.   Other Motives

Other possible reasons for hostile takeovers are investigated in analyzing the relationship between the type of offer (i.e. hostile or friendly) and several explanatory variables. A list of these variables and their definitions is reported in Table 3. The explanatory variables are the target sales (SALES), the buyer country (BUYCOU), the target country (TARCOU), the year of the announcement of the takeover (YEAR), and the target industry (INDUST). Moreover, three ratios (reported in percentage) are computed with the latest available target data prior to the year of the takeover announcement: the liquidity ratio (LIQUID), the debt ratio (DEBT), and the return on equity (ROE). Hostile bidders are expected to be more attracted to target firms with high liquidity ratio, because a higher cash amount in the target firm allows the bidder to make a higher bid without requiring additional financial resources. Hostile bidders are expected to be more interested in target firms with lower debt ratios, because it allows the bidder to simultaneously issue debts to finance the takeover and to reach a lower debt ratio for the combined entity than the debt ratio for the bidder alone. Following the inefficient target management hypothesis, it is expected that target firms involved in hostile takeovers have a lower ROE than targets in friendly offers.

Note that the magnitudes of these three ratios are affected by both the target performance and target industry. To control for the industry effect, the ratios computed for the target firms involved in hostile takeovers are compared to those calculated for the targets in the (friendly) control group only.[9] The cross-tabulations between the type of offer and the other variables are reported in Table 4.

Table 4 shows that HOSTILE is significantly related to SALES. The higher the target sales (or the target size), the higher the probability for the target to be acquired in a hostile takeover than in a friendly offer. In other words, bidders launch proportionally more hostile bids when the target firm is a large firm. This may be due to the fact that, as larger targets have easier access to financial expert help in building defenses against hostile offers (e.g. "poison pills"), the management of larger targets may be more tempted to refuse an unsolicited bid. Another explanation lies in the hubris of the target management, who may be somewhat proud to work in a

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[9]Remember that the control group was built notably in matching the industry of the target firms involved in hostile and friendly offers.

TABLE 3.

Definitions of the variables

Variables	Definitions
SALES	The target most recent annual sales available at the time of the takeover announcement (in $million).
BUYCOU	The country of the buyer.
TARCOU	The country of the target firm.
YEAR	The announcement year of the takeover.
INDUST	The target industry category, following the Mergerstat Review classification.
LIQUID	Cash and other short term investments divided by the total assets.
DEBT	Total long-term debts divided by the stockholders equity.
ROE	Net income divided by the stockholders equity.
METPAY	The method of payment.
COMPET	Whether there is a competition among bidders for the same target firm (dichotomous variable).
SUCCES	The success of the takeover (dichotomous variable).
PRICE	The total price offered (in $million).
PREMIU	The premium offered (in percent), defined as the difference between the price offered per target stock with the target stock market price five business days before the announcement date.
PE	The price to earnings ratio offered, based on the publicly traded target latest 12 months earnings available at the time of the announcement date.
MULTIP	The multiple of book, defined as the purchase price to book value (stockholder's equity) ratio, for the latest available fiscal year at the time of announcement.

This table presents the definitions of the variables used in the crosstabulations, and in the logit model.

TABLE 4.

Cross-tabulations between HOSTILE and other explanatory variables

Variable	Sample size	Value	Hostile offer (HOSTILE) Yes (%)	No (%)	Chi-square	df	Asymp. sig. (2-sided)
SALES	559	Low	7.2	92.8	10.925	2	0.004*
		Medium	10.3	89.7			
		High	17.9	82.1			
BUYCOU	644	US buyer	11.0	89.0	1.674	1	0.196
		Foreign buyer	15.7	84.3			
TARCOU	644	US target	11.4	88.6	1.042	1	0.307
		Foreign target	20.0	80.0			
YEAR	644	1990	16.7	83.3	15.947	5	0.007*
		1991	7.8	92.2			
		1992	5.3	94.7			
		1993	2.3	97.7			
		1994	13.4	86.6			
		1995	15.5	84.5			
INDUST	644	40(Banking & finance)	2.0	98.0	24.923	10	0.005*
		41(Insurance)	10.5	89.5			
		44(Computer soft-ware., supplies)	12.1	87.9			
		14(Drugs, Medical supplies)	14.7	85.3			
		39(Retail)	18.8	81.3			
		47(Health services)	3.4	96.6			
		37(Electric, gas, wa-ter & sanitary)	13.6	86.4			
		26(Office & computer hardware)	13.0	87.0			
		38(Wholesale & dis-tribution)	13.3	86.7			
		48(Leisure & enter-tainment)	6.3	93.8			
		Other	17.0	83.0			
LIQUID	99	Low	45.5	54.5	1.053	2	0.591
		Medium	42.4	57.6			
		High	54.5	45.5			
DEBT	95	Low	45.2	54.8	0.153	2	0.927
		Medium	46.9	53.1			
		High	50.0	50.0			
ROE	76	Low	40.0	60.0	3.660	2	0.160
		Medium	34.6	65.4			
		High	60.0	40.0			

∗ Significant at $\alpha = 0.01$ level.

This table presents the distribution in percentage of one given type of variable (in the first and third column) among the types of offer (i.e. hostile or friendly offers). The last three columns report respectively the Chi-square statistic to test the independence between the variables in the first column and the type of offer (i.e. the variable HOSTILE), the degrees of freedom and the asymptotic significance (or p value) associated to the Chi-square statistic. The tests are based on the initial sample of 684 mergers, less those cases with missing information.

well-known firm, which leads on occasion to the failure of an offer to the detriment of the target stockholders. The country of the bidder and target firms (BUYCOU and TARCOU, respectively) has no influence on the type of offer.

The variable YEAR has an important impact on the variable HOSTILE. The proportion of hostile takeovers each year follows the M&A market trend: it decreases drastically during the recession period (from 1990 to 1992), and increases significantly during the expansion period (from 1994 to 1995) with a lag of one year (in 1993).

The type of offer depends also strongly on the industry of the target firm. The target industries generating the lowest proportions of hostile bids are Banking & Finance (2.0%) and Health services (3.4%). In contrast, the target industries generating the highest proportion of hostile bids are Retail (18.8%) and the industries classified as Other (17.0%). Finally, there is no statistically significant evidence of a relationship between the type of offer and the level of the ratios LIQUID, DEBT and ROE. To summarize, the type of offer launched by a bidder depends strongly on the size and the financial environment of the target firm (i.e. the trend of the M&A market and the target industry).

4. CONSEQUENCES OF HOSTILE TAKEOVERS

4.1.   Crosstabulations and Frequencies

The immediate consequences of hostile takeovers are investigated in analyzing the relationship between the type of offer (i.e. hostile or friendly) and several subsequent variables. The subsequent variables are the method of payment (METPAY), whether there is competition or not among bidders (COMPET), whether the offer is successful or not (SUCCES), the level of the price offered (PRICE), the level of the premium offered (PREMIU), the level of the PE ratio offered (PE), and the level of the multiple of book value offered (MULTIP).[10] These variables are available for 33 out of the 75 hostile takeover attempts reported over 1990-1995. The cross- tabulations between the type of offer and the other variables are reported in Table 5.

Table 5 reports, first, that the method of payment is statistically significantly associated with the type of offer: 23.2% of the cash offers are hostile, whereas this percentage drops to only 2.0% for the stock offers. Hostile takeovers are thus more frequently launched with cash offers than with any other method of payment. This is probably due to the fact that there is no uncertainty regarding the amount that target stockholders will get for their stocks in cash offers, which may appear more appealing for target stockholders than any other form of payment. In contrast, friendly

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[10]See Table 3 for a precise definition of these variables.

TABLE 5.

Cross-tabulations between HOSTILE and other subsequent variables

Variable	Sample size	Value	Hostile offer (HOSTILE) Yes (%)	No (%)	Chi-square	df	Asymp. sig. (2-sided)
METPAY	506	Cash	23.2	76.8	45.374	3	0.000**
		Debt	0.0	100.0			
		Stock	2.0	98.0			
		Mixed	13.4	86.6			
COMPET	644	Yes	32.9	67.1	41.356	1	0.000**
		No	8.5	91.5			
SUCCESS	644	Yes	7.7	92.3	55.562	1	0.000**
		No	34.0	66.0			
PRICE	643	Low	6.4	93.6	15.774	2	0.000**
		Medium	9.7	90.3			
		High	18.3	81.7			
PREMIU	611	Low	5.6	94.4	8.757	2	0.013*
		Medium	12.4	87.6			
		High	14.3	85.7			
PE	489	Low	10.5	89.5	1.857	2	0.395
		Medium	13.7	86.3			
		High	9.0	91.0			
MULTIP	445	Low	9.0	91.0	4.869	2	0.088
		Medium	17.5	82.5			
		High	12.2	87.8			

∗ Significant at $\alpha = 0.05$ level.

∗∗ Significant at $\alpha = 0.01$ level.

This table presents the distribution in percentage of one given type of variable (in the first and third column) among the types of offer (i.e. hostile or friendly offers). The last three columns report respectively the Chi-square statistic to test the independence between the variables in the first column and the type of offer (i.e. the variable HOSTILE), the degrees of freedom and the asymptotic significance (or p value) associated to the Chi-square statistic. The tests are based on the initial sample of 684 mergers, less those cases with missing information.

takeovers are proportionally more often launched with stock exchange offers (we exclude debt offers for which only two cases are reported). Logically, the proportion of hostile takeovers launched with mixed offers (i.e. including either cash and stock or cash and debt) lies between those for cash offers and those for stock offers.

Second, for the subsample in which competitive bidding arose, 32.9% were hostile bids while 67.15% were friendly. For the subsample in which competition did not arise the percentage of hostile bids dropped to 8.5% of the total. Again, this relationship is strongly significant. In other words, the percentage of hostile offers incurring competition among bidders is significantly much higher than the percentage of hostile offers having no competition.

Third, Table 5 reports a strong relationship between HOSTILE and SUCCES: 7.7% of the successful attempts are hostile, whereas this percentage increases to 92.3% when the offer is friendly. Thus, the type of offer has a strong impact on the issue of the takeover attempt. Fourth, the percentage of hostile offers increases dramatically and significantly with the price offered. In other words, takeover attempts on large targets (i.e. with a high purchase price) are more hostile than takeover attempts on small targets, which validates the finding of Table 4 that hostile takeovers are significantly associated with larger target sales.

Fifth, the level of the bid premium increases significantly with the proportion of hostile offers. As expected and already shown in Table 2, the premiums offered to target firms are significantly higher in hostile offers than in friendly offers. In other terms, in addressing the offer directly to the target stockholders, the offer must be more appealing to gain the stockholders' agreement to tender their stocks.

Finally, the type of offer made has little to do with bidder expectation of growth of the target firm: the level of the P/E offered and of the multiple-to-book ratio offered are not significantly related to the type of offer. To summarize, hostile bidders are more interested in larger target firms than smaller firms. Hostile bidders offer higher bid premiums, and use cash more often as method of payment than friendly bidders. Moreover, hostile bidders endure more competition from other bidders for the same target, and the probability of successful takeover attempts is much lower than for friendly offers.

4.2. Logit model

The probability of a takeover incurring competition depending on the type of offer is investigated with a multinomial logit model. The dichotomous explanatory variable is HOSTIL and the dichotomous response variable is COMPET. The expected number of offers incurring competition with the type of offer i is denoted m_{i1}, and the expected number of of-

fers incurring no competition with the type of offer i is denoted m_{i0}, where $i \in \{H, F\}$ represents the index for a hostile or a friendly offer, respectively. The logit model is as follows:

$$\ln\left(\frac{m_{i1}}{m_{i0}}\right) = \lambda + \delta_i \qquad \forall i \in \{H, F\} \tag{6}$$

where λ is the baseline term, and δ_i is the term due to the type of offer chosen. The equivalent loglinear model is described by equation (7):

$$\ln(m_{ij} = \alpha_i + \beta_j + \gamma_{ij} \qquad \forall i \in \{H, F\}, j = 0, 1 \tag{7}$$

where α_i is the main-effect term of the variable HOSTILE, β_j is the main-effect term of the variable COMPET, γ_{ij} is the interaction term between HOSTILE and COMPET, $j = 1$ is the index for an offer incurring a competition and $j = 0$ is the index for an offer without competition.[11] The same logit model (6) is also used to estimate the probability of a successful takeover. In this case, the dichotomous response variable is SUCCES.

The results of the loglinear model (7) and logit model (6) are reported in Table 6 and Table 7, respectively. The estimated odds of having a competition among bidders after a particular type of offer are the following:

$$\frac{m_{H1}}{m_{H0}} = e^{\lambda + \delta_H} = e^{-0.575} = 0.563 \tag{8a}$$

$$\frac{m_{F1}}{m_{F0}} = e^{\lambda + \delta_F} = e^{-2.235} = 0.107 \tag{8b}$$

The higher odds of having a competition follow a hostile offer. More precisely, competition is 5.26 times (0.563/0.107) more likely following a hostile offer than a friendly offer. Conversely, the estimated odds for a particular type of offer to be successful are as follows:

$$\frac{m_{H1}}{m_{H0}} = e^{\lambda + \delta_H} = e^{0.241} = 1.273 \tag{9a}$$

$$\frac{m_{F1}}{m_{F0}} = e^{\lambda + \delta_F} = e^{2.066} = 7.893 \tag{9b}$$

The higher odds of success follow a friendly offer. More precisely, success is 6.20 times (7.893/1.273) more probable for a friendly offer than a hostile offer. These results confirm the findings reported in Table 5.

5. CONCLUSION

Using a recent sample of US corporate takeovers from 1990 to 1995, this paper finds no indications of poor target performance over the five years

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[11]The comparison of equations (6) and (7) gives $\lambda = (\beta_1 - \beta_0)$ and $\delta_i = (\gamma_{i1} - \gamma_{i0}$.

TABLE 6.

General Loglinear Model

Dependent Variable	Param.[b]	Estimate	SE	Z-value	Asymptotic 95% CI Lower	Upper
COMPET	α_F	4.007	a	a	a	a
	α_H	3.296	a	a	a	a
	β_0	0.575	0.241	2.39	0.10	1.05
	γ_{F_0}	1.660	0.279	5.94	1.11	2.21
SUCCES	α_F	6.225	a	a	a	a
	α_H	3.738	a	a	a	a
	β_0	−0.241	0.233	−1.04	−0.70	0.21
	γ_{F_0}	−1.825	0.268	−6.81	−2.35	−1.30

a Constants are not parameters under multinomial assumption. Therefore, standard errors are not calculated.

b The redundant parameters are not reported in Table 6, as they are set to zero. This table presents the parameter estimates, the standard error, the z value and the asymptotic 95% confidence interval for the following general loglinear model:

$$\ln(m_{ij} = \alpha_i + \beta_j + \gamma_{ij},$$

where m_{ij} is the expected number of offers and where the subscript i refers to the type of offer (i.e. hostile or friendly) and the subscript j refers to the type of the variable considered (i.e. yes or no). The estimates are based on the initial sample of 684 mergers, less those cases with missing information (i.e. 644 remaining mergers).

TABLE 7.

Logit Model

Dependent variable	λ	δ_F	δ_H
COMPET	−0.575	−1.660	0.000
SUCCES	0.241	1.825	0.000

This table presents the parameter estimates for the logit model:

$$\ln(m_{i1}/m_{i0}) = \lambda + \delta_i,$$

where m_{ij} is the expected number of offers and where the subscript i refers to the type of offer (i.e. hostile or friendly) and the subscript j refers to the type of the variable considered (i.e. yes or no). The estimates are based on the initial sample of 684 mergers, less those cases with missing information (i.e. 644 remaining mergers).

prior to the takeover announcement with respect to the market performance. However, we find strong evidence that hostile takeovers do perform a correction for target managerial failure prior to the takeover announcement with respect to the performance of comparable firms. Although, there is no significant evidence to support or invalidate the pre-bid run-up premium hypothesis, the type of offer (i.e. hostile or friendly) is strongly related to the size, capital structure and industry of the target firm, and to the general trend of the M&A market.

This paper finds that higher premiums and cash offers are more often associated with hostile offers. Hostile offers incur significantly greater competition among bidders than friendly offers. Moreover, the probability of successful takeover attempts is much lower for hostile bidders than for friendly offers.

REFERENCES

Bhide, A., 1993, The causes and consequences of hostile takeovers. In: D.H. Chew Jr., ed., The new corporate finance: Where theory meets practice (McGraw Hill, New York, NY).

Brown, S. J. and J. B. Warner, 1980, Measuring security price information. *Journal of Financial Economics* **8**, 205-258.

Brown, S. J. and J. B. Warner, 1985, Using daily stock returns: The case of event studies. *Journal of Financial Economics* **14**, 3-31.

Franks, J. R. and C. Mayer, 1996, Hostile takeovers and the correction of managerial failure. *Journal of Financial Economics* **40**, 163-181.

Franks, J. R., R. S. Harris, and C. Mayer, 1988, Means of payment in takeovers: Results for the UK and the US. In: Alan J. Auerbach, ed., Corporate takeovers: causes and consequences, The University of Chicago Press, National Bureau of Economic Research, Chicago, IL., 221-258.

Healy P. M., K. G. Palepu, and R. S. Ruback, 1992, Does corporate performance improve after mergers? *Journal of Financial Economics* **31**, 135-176.

Lang, L. H. P, R. M. Stulz, and R. A. Walkling, 1989, Managerial performance, Tobin's q, and the gains from successful tender offers. *Journal of Financial Economics* **24**, 137-154.

Salinger, M., 1992, Standard errors in event studies. *Journal of Financial and Quantitative Analysis* **27**, 39-54.

Schwert, G. W., 1996, Markup pricing in mergers and acquisitions. *Journal of Financial Economics* **41**, 153-192.

Schwert, G. W., 1999, Hostility in takeovers: In the eyes of the beholder? *Journal of Finance* **55**, 2599-2640.

Walking, R. A., 1985, Predicting tender offer success: A logistic analysis. *Journal of Financial and Quantitative Analysis* **20**, 461-477.