

The Effect of Takeovers on Shareholder Value

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Table 1
Sample

Number of attempted takeovers, successful takeovers, takeovers that involved two or more bidders, takeovers that were considered as hostile by target management, and takeovers in which the target litigated against the acquisition attempt. Sample includes takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

Year	Number of attempted takeovers	Number of successful takeovers (where the bidder acquired at least one share)	Number of attempted takeovers that had at least two bidders	Number of attempted takeovers considered hostile by target management	Number of attempted takeovers where the target litigated	Number of all cash offers
1962	1	1	0	0	0	1
1963	9	8	1	2	0	9
1964	4	3	0	1	0	4
1965	11	10	2	1	0	10
1966	13	8	2	4	1	12
1967	19	13	12	8	5	17
1968	30	21	12	9	7	15
1969	10	5	3	1	2	3
1970	8	6	0	2	3	6
1971	2	2	0	0	0	1
1972	8	6	0	2	2	6
1973	17	10	2	4	5	16
1974	22	15	5	6	5	21
1975	13	6	4	4	10	12
1976	18	11	2	5	5	16
1977	17	10	5	3	4	17
1978	21	6	5	6	7	14
1979	20	7	4	11	9	17
1980	4	2	2	2	1	4
1981	13	3	9	10	8	0
1982	13	10	0	2	3	0
1983	10	5	2	4	2	0
1984	9	4	1	2	0	0
1985	41	22	7	12	10	29
1986	58	37	8	14	8	51
1987	43	32	5	10	7	37
1988	72	44	17	22	17	59
1989	44	27	6	11	6	32
1990	19	12	1	1	4	14
1991	11	9	2	1	4	3
1992	10	8	0	1	3	7
1993	17	13	2	2	3	11
1994	35	26	4	10	5	30
1995	41	36	3	11	5	30
1996	46	43	2	6	5	30
1997	65	49	8	13	4	38
1962-1997	794	530	138	203	160	572

Table 2
Shareholder returns in **attempted** takeovers

Shareholder returns over various sub-periods in attempted takeovers. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997. All dollar figures are in millions of 1997 dollars.

	Sub-period							Total
	7/62- 6/68	7/68- 12/80	1/81- 12/84	1/85- 12/88	1/89- 12/92	1/93- 12/96	1/97- 12/97	7/62- 12/97
Number of attempted takeovers	69	169	44	214	83	139	65	783
Bidder								
Mean CAR (%)	5.44	3.85	-0.54	0.56	-2.34	2.71	1.87	1.79
Z-statistic	4.82	2.73	-0.46	0.44	-2.00	3.42	1.29	3.95
Median CAR (%)	5.06	0.52	-2.40	0.15	-1.10	3.37	1.61	0.91
% positive	65.7	50.6	45.5	50.2	39.8	60.9	55.4	52.6
Binomial p	.01	.93	.65	1.00	.08	.01	.46	.16
Mean dollar return	30.4	38.3	-5.79	-71.5	-94.9	256.9	41.1	29.8
Median dollar return	17.1	0.7	-5.26	0.2	-14.7	21.1	6.8	1.8
Target								
Mean CAR (%)	22.4	27.9	40.9	35.4	32.6	37.7	33.9	32.9
Z-statistic	21.3	28.3	21.6	42.1	19.9	27.5	18.9	70.0
Median CAR (%)	23.1	24.0	40.4	33.6	29.5	34.6	35.2	30.2
% positive	95.7	92.3	97.7	93.0	89.2	97.1	92.3	93.6
Binomial p	.00	.00	.00	.00	.00	.00	.00	.00
Mean dollar return	95.5	69.1	288.6	156.9	178.2	191.9	127.5	146.1
Median dollar return	46.7	28.1	92.8	45.0	26.2	57.0	42.4	40.0
Combined								
Mean CAR (%)	10.29	9.20	10.90	6.89	3.59	7.23	8.24	7.71
Z-statistic	11.63	11.70	8.16	13.31	3.92	9.43	6.93	24.90
Median CAR (%)	8.87	5.81	10.50	7.63	2.61	6.88	8.44	6.69
% positive	81.3	74.1	79.1	70.4	63.0	79.0	68.8	73.2
Binomial p	.00	.00	.00	.00	.03	.00	.00	.00
Mean dollar return	122.7	112.0	333.7	86.6	102.0	466.5	170.9	186.6
Median dollar return	55.3	34.9	54.7	38.1	7.4	82.4	56.3	46.4

CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period **thirty** days before the first bid through one day after.

Target dollar return is target market value (before the first bid) times target CAR; similarly for bidder and combined dollar returns.

Combined CAR is a weighted average of target and bidder CARs, where their weights are their market values as a fraction of the total target and bidder market value.

Combined dollar return is the sum of target and bidder dollar returns. The target mean dollar return and the bidder mean dollar return in the above table may not exactly sum to the combined dollar return because of missing data for target or bidder in some cases.

Binomial p is the significance level for the two-tail Fisher sign test that tests whether the median CAR is different from zero.

Table 2.2

Panel A: Shareholder returns in **attempted** takeovers

Shareholder returns over various sub-periods in attempted takeovers. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997. All dollar figures are in millions of 1997 dollars.

	Sub-period							Total
	7/62- 6/68	7/68- 12/80	1/81- 12/84	1/85- 12/88	1/89- 12/92	1/93- 12/96	1/97- 12/97	7/62- 12/97
Number of attempted takeovers	69	169	44	214	85	139	65	783
Bidder								
Mean CAR (%)	3.01	.41	-1.38	-.48	-1.79	.98	1.74	.26
Z-statistic	5.20	.62	-1.69	-.88	-3.02	1.23	1.29	.83
Median CAR (%)	1.58	-.14	-1.72	-1.15	-1.04	.91	.57	-.26
% positive	62.7	49.4	31.8	44.9	41.7	52.9	50.8	48.2
Binomial p	.05	.94	.02	.15	.16	.55	1.00	.33
Mean dollar return	12.5	23.8	-45.6	-47.4	-52.3	82.4	91.8	7.11
Median dollar return	7.8	-.36	-6.2	-2.7	-7.3	3.6	.9	-.88
Target								
Mean CAR (%)	18.0	28.1	32.0	27.9	29.7	33.6	28.0	28.5
Z-statistic	29.74	49.27	28.52	53.10	31.72	40.32	25.88	101.02
Median CAR (%)	17.8	23.1	31.6	24.2	28.3	30.9	25.5	25.0
% positive	94.2	93.5	93.2	93.0	87.1	94.2	92.3	93.0
Binomial p	.00	.00	.00	.00	.00	.00	.00	.00
Mean dollar return	82.2	66.2	307.5	130.3	172.4	188.2	113.2	135.5
Median dollar return	46.9	28.7	67.4	37.2	24.8	41.5	44.1	37.3
Combined								
Mean CAR (%)	7.34	6.51	8.18	5.42	3.78	5.09	7.47	5.90
Z-statistic	14.24	16.00	10.35	15.95	6.18	10.80	9.51	31.90
Median CAR (%)	6.32	4.20	8.72	4.20	1.86	4.00	5.39	4.12
% positive	84.3	73.2	74.4	72.4	59.8	77.5	75.0	73.5
Binomial p	.00	.00	.00	.00	.10	.00	.00	.00
Mean dollar return	91.6	93.3	284.4	80.6	120.0	281.8	208.1	147.0
Median dollar return	67.9	24.7	37.9	21.4	5.2	50.9	44.4	30.3

CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period **five days before the first bid through five days after**.

Target dollar return is target market value (six days before the first bid) times target CAR; similarly for bidder and combined dollar returns.

Combined CAR is a weighted average of target and bidder CARs, where their weights are their market values as a fraction of the total target and bidder market value.

Combined dollar return is the sum of target and bidder dollar returns. The target mean dollar return and the bidder mean dollar return in the above table may not exactly sum to the combined dollar return because of missing data for target or bidder in some cases.

Binomial p is the significance level for the two-tail Fisher sign test that tests whether the median CAR is different from zero.

Table 2.2
Panel B: Shareholder returns in **successful** takeovers

Shareholder returns over various sub-periods in successful takeovers (where the bidder acquired at least one share). Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997. All dollar figures are in millions of 1997 dollars.

	Sub-period							Total
	7/62- 6/68	7/68- 12/80	1/81- 12/84	1/85- 12/88	1/89- 12/92	1/93- 12/96	1/97- 12/97	7/62- 12/97
Number of successful takeovers	47	86	22	135	55	117	48	510
Bidder								
Mean CAR (%)	3.44	1.28	-1.80	-.15	-2.13	1.32	1.75	.65
Z-statistic	5.21	1.76	-1.88	-.23	-2.60	1.41	1.66	2.10
Median CAR (%)	1.74	.07	-2.40	-.87	-1.06	.92	-.42	-.25
% positive	66.0	50.0	27.3	46.7	36.4	53.0	43.8	48.2
Binomial p	.04	1.00	.05	.49	.06	.58	.47	.45
Mean dollar return	19.8	66.8	-40.1	-81.4	-64.0	89.2	122.9	14.9
Median dollar return	11.4	-.01	-15.3	-2.80	-17.7	4.40	-2.91	-1.0
Target								
Mean CAR (%)	17.3	28.1	29.3	30.8	31.9	32.4	28.2	29.3
Z-statistic	24.20	33.20	16.56	46.59	25.44	36.34	22.66	81.07
Median CAR (%)	16.8	24.0	30.0	26.1	31.4	29.8	24.4	25.5
% positive	93.6	96.5	90.9	97.8	85.5	94.0	91.7	94.1
Binomial p	.00	.00	.00	.00	.00	.00	.00	.00
Mean dollar return	70.3	47.6	86.8	140.7	139.0	162.2	83.8	114.3
Median dollar return	44.2	20.2	42.8	44.8	25.0	40.5	41.5	35.0
Combined								
Mean CAR (%)	19.1	6.12	3.16	5.99	3.21	5.11	7.08	5.58
Z-statistic	10.49	10.20	2.67	14.18	3.63	9.63	8.11	24.16
Median CAR (%)	14.1	3.67	1.83	4.67	0.58	3.84	4.50	3.75
% positive	80.9	72.1	59.1	71.9	52.7	76.1	70.8	71.0
Binomial p	.00	.00	.00	.00	.78	.00	.00	.00
Mean dollar return	92.9	116.0	33.3	55.7	69.8	260.0	209.3	131.1
Median dollar return	71.6	17.1	24.4	31.4	2.0	53.0	42.0	30.1

CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period **five days before the first bid through five days after**.

Target dollar return is target market value (six days before the first bid) times target CAR; similarly for bidder and combined dollar returns.

Combined CAR is a weighted average of target and bidder CARs, where their weights are their market values as a fraction of the total target and bidder market value.

Combined dollar return is the sum of target and bidder dollar returns. The target mean dollar return and the bidder mean dollar return in the above table may not exactly sum to the combined dollar return because of missing data for target or bidder in some cases.

Binomial p is the significance level for the two-tail Fisher sign test that tests whether the median CAR is different from zero.

Table 2.2

Panel C: **Longer-window** shareholder returns in attempted takeovers

Shareholder returns over various (longer) windows in attempted takeovers. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

	Window: From T days prior to the first bid announcement through one day after						
	T = 90	T = 60	T = 30	T = 15	T = 10	T = 5	T = 1
Bidder							
Mean CAR (%)	1.2	1.0	1.8	1.6	1.2	.9	.5
Z-statistic	1.94	1.94	3.88	4.17	3.61	3.61	3.34
Median CAR (%)	.6	1.4	.9	.7	.4	.3	.3
% positive	51.8	53.6	52.6	55.0	52.8	52.3	52.2
Binomial p	.33	.05	.16	.01	.12	.21	.24
Target							
Mean CAR (%)	36.3	35.5	32.9	29.8	28.3	26.2	21.7
Z-statistic	45	54	78	87	98	119	151
Median CAR (%)	34.8	33.0	30.2	26.3	25.5	22.5	17.8
% positive	88.5	91.9	93.6	94.4	93.2	94.5	93.0
Binomial p	.00	.00	.00	.00	.00	.00	.00
Combined							
Mean CAR (%)	7.7	7.5	7.7	7.0	6.4	5.7	4.6
Z-statistic	15.1	17.7	24.6	30.4	33.1	38.6	46.6
Median CAR (%)	7.7	7.3	6.7	5.0	4.8	4.0	3.2
% positive	65.4	69.5	73.2	75.9	76.0	74.9	76.3
Binomial p	.00	.00	.00	.00	.00	.00	.00

CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period **T days before the first bid through one day after**.

Combined CAR is a weighted average of target and bidder CARs, where their weights are their market values as a fraction of the total target and bidder market value.

Binomial p is the significance level for the two-tail Fisher sign test that tests whether the median CAR is different from zero.

Table 3
IRATIO estimates

IRATIO: Improvement ratio or implicit market estimate of the value to the bidder of the takeover. Sample includes takeovers during 1962-1997 where both target and bidder were listed on NYSE, AMEX or NASDAQ, and there was a competing bid for the target.

Data source for parameter inputs	Period during which these parameters were estimated	Bidder return computed over window	Parameter inputs to compute IRATIO				IRATIO summary statistics									
			Unconditional probability of success of first bidder (%)	Probability of success of first bidder conditional on a competing bid (%)	Average final bid premium (relative to pre-offer price) at which the first bidder wins (%)	Average final bid premium at which the first bidder wins conditional on a competing bid (%)	Mean (%)	Median (%)	5 th Percentile (%)	95 th Percentile (%)	Sample size	Number > 0	Number < 0	p value for Fisher sign test	p value for Wilcoxon signed-rank test	
This study	1962-1997	1	66.8	25.6	43.5	44.0	49.6	43.4	-8.8	128.3	129	122	7	.000	.000	
This study	1962-1997	2	66.8	25.6	43.5	44.0	42.7	49.8	-300	232	127	106	21	.000	.000	
Bhagat/Shleifer/Vishny (1990): 1984-1986		1	47.5	30.0	37.0	47.2	36.7	21.2	-103	21	129	95	34	.000	.000	
Bhagat/Shleifer/Vishny (1990): 1984-1986		2	47.5	30.0	37.0	47.2	20.5	36.9	-786	463	127	91	36	.000	.000	
Betton-Eckbo (1998): 1971-1990		1	63.9	16.8	57.0	85.6	52.2	47.0	1.3	121	129	123	6	.000	.000	
Betton-Eckbo (1998): 1971-1990		2	63.9	16.8	57.0	85.6	46.1	52.4	-254	212	127	108	19	.000	.000	
This study	1962-1997	1	Logit Model A1	Logit Model B	43.5	44.0	44.2	43.9	-52	142	122	113	9	.000	.000	
This study	1962-1997	2	Logit Model A2	Logit Model B	43.5	44.0	64.3	53.3	-529	381	121	98	23	.000	.000	
This study	1962-1997	1	Logit Model A1	Logit Model B	Regression Model A1	Regression Model B	48.4	48.9	-52	150	122	107	15	.000	.000	
This study	1962-1997	2	Logit Model A2	Logit Model B	Regression Model A2	Regression Model B	67.3	58.8	-520	382	121	97	23	.000	.000	

Bidder return window 1: Abnormal return for the first bidder is computed over the period one day before and the day of the first competing bid announcement for the target.

Bidder return window 2: Abnormal return for the first bidder is computed over the period one day after the first bid to the day of the first competing bid announcement for the target.

Logit Models A1, A2 and B are detailed in Table 4 and provide probability estimates of the success of the first bidder unconditionally, and conditional on a competing bid.

Mean/median/minimum/maximum probability estimates for Models A1, A2, and B are (in %) 50.8/45.6/25.0/80.2, 53.5/38.0/33.6/79.1, and 22.3/17.0/11.8/37.5, respectively.

Regression Models A1, A2 and Regression Model B: Regression models used to estimate the average price paid by the first bidder. The dependent variable is the average price (relative to the pre-offer price) at which the first bidder wins unconditionally, and conditional on a competing bid. Independent variables for Regression Model A1: Litigation, Hostile, Alpha. Independent variables for Regression Model A2: Hostile, Alpha. Independent variables for Regression Model B: Litigation, Competing bid, Hostile, Alpha.

Please see Table 4 for variable definitions.

The Fisher sign and Wilcoxon signed rank test consider the null hypothesis that the median IRATIO is 0.0.

The target pre-offer price is measured 20 days prior to the first announcement of the tender offer.

Table 4

Logit model estimates of the probability of success of the first bidder unconditionally (Models A1 and A2), and conditional on whether a competing bid occurs (Model B). Sample size is 794, and includes takeovers during 1962-1997 where both target and bidder were listed on NYSE, AMEX or NASDAQ.

Model A1

Independent Variable	Coefficient	Asymptotic t-ratio
Litigation	-.77	-3.55
Hostile	-1.45	-7.42
Alpha	1.02	1.73
Premium	.09	.45
Constant	1.12	3.52

Pearson $X^2 = 746$

Model A2

Independent Variable	Coefficient	Asymptotic t-ratio
Hostile	-1.72	-9.45
Alpha	.91	1.55
Premium	.09	.45
Constant	1.04	3.31

Pearson $X^2 = 743$

Model B

Independent Variable	Coefficient	Asymptotic t-ratio
Litigation	-.45	-1.96
Competing bid	-1.69	-6.99
Hostile	-1.25	-6.02
Alpha	.51	.87
Premium	-.02	-.11
Constant	1.50	4.62

Pearson $X^2 = 749$

Hostile = 1, if the target management opposes the first bidder, 0 otherwise.

Alpha = fraction of the target held by the first bidder.

Premium = initial bid price offered relative to the prebid market price of the target.

Litigation = 1, if the target files a lawsuit against the first bidder, 0 otherwise.

Competing bid = 1, if a competing bidder arrives, 0 otherwise.

Table 4.2

Logit model estimates of the probability of success of the first bidder unconditionally (Models A1 and A2), and conditional on whether a competing bid occurs (Model B). **Models are estimated over two separate time periods :** 7/62-6/68, and 7/68-12/97. Sample size is 794, and includes takeovers during 1962-1997 where both target and bidder were listed on NYSE, AMEX or NASDAQ. Asymptotic t-ratio in parentheses.

Model A1

Independent Variable	7/62-6/68	7/68-12/97
Litigation	.38 (.35)	-.78 (-3.49)
Hostile	-1.32 (-1.97)	-1.50 (-7.25)
Alpha	3.59 (1.31)	.85 (1.43)
Premium	.71 (.62)	.14 (.65)
Constant	.42 (.27)	1.04 (3.10)
Sample size	56.3	683.5
Pearson X^2	63	680

Model A2

Independent Variable	7/62-6/68	7/68-12/97
Hostile	-1.23 (-1.97)	-1.79 (-9.28)
Alpha	3.53 (1.28)	.71 (1.19)
Premium	.49 (.92)	.13 (.58)
Constant	.73 (.57)	.98 (2.97)
Sample size	56.7	680.7
Pearson X^2	63	680

Model B

Independent Variable	7/62-6/68	7/68-12/97
Litigation	.56 (.48)	-.45 (-1.85)
Competing bid	-2.10 (-2.89)	-1.76 (-6.57)
Hostile	-1.03 (-1.43)	-1.32 (-5.99)
Alpha	1.89 (.64)	.38 (.64)
Premium	.17 (.14)	.06 (.27)
Constant	1.91 (1.12)	1.35 (3.94)
Sample size	53.0	689.5
Pearson X^2	63	680

Hostile = 1, if the target management opposes the first bidder, 0 otherwise.

Alpha = fraction of the target held by the first bidder.

Premium = initial bid price offered relative to the prebid market price of the target.

Litigation = 1, if the target files a lawsuit against the first bidder, 0 otherwise.

Competing bid = 1, if a competing bidder arrives, 0 otherwise.

Table 5

Implicit market estimates of the value to the bidder of the takeover (IRATIO), combined initial bid returns (CIBR), and probability-adjusted combined initial bid returns (PACIBR). Sample includes takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997; additionally, for IRATIO the sample is restricted to cases where there was a competing bid for the target.

	Sub-period							Total
	7/62- 6/68	7/68- 12/80	1/81- 12/84	1/85- 12/88	1/89- 12/92	1/93- 12/96	1/97- 12/97	7/62- 12/97
IRATIO								
Mean (%)	53.0	62.5	31.1	43.7	57.6	43.2	34.5	49.6
Median (%)	54.8	43.7	38.2	43.2	40.0	50.5	28.9	43.4
% positive	100	100	90.9	91.9	100	90.9	85.7	95.3
Binomial p	.000	.000	.012	.000	.000	.012	.125	.000
Sample size	18	36	11	37	9	11	7	129
CIBR								
Mean (%)	36.7	28.8	51.8	39.2	-67.0	251.5	258.5	83.3
Median (%)	26.9	26.0	36.5	25.6	17.2	54.8	30.6	28.3
% positive	81.3	73.2	74.4	70.0	67.1	78.3	69.2	73.0
Binomial p	.00	.00	.00	.00	.00	.00	.00	.00
Sample size	64	157	43	213	82	138	65	762
IRATIO – CIBR								
Mean (%)	23.6	29.9	-9.3	9.7	118.0	-1.4	-11.7	21.1
Median (%)	21.2	24.0	-4.8	9.4	28.1	13.8	-0.1	16.2
% positive	72.2	77.8	27.3	64.9	88.9	63.6	42.9	66.7
Binomial p	.10	.00	.23	.10	.04	.55	1.00	.00
Sample size	18	36	11	37	9	11	7	129
PACIBR								
Mean (%)	43.3	47.2	68.0	52.7	-26.6	279.1	284.5	105.8
Median (%)	33.3	34.3	54.0	38.8	28.3	66.4	45.9	41.1
% positive	81.0	72.9	74.4	71.2	69.3	80.5	69.2	73.8
Binomial p	.00	.00	.00	.00	.00	.00	.00	.00
Sample size	58	144	43	208	75	133	65	726
IRATIO – PACIBR								
Mean (%)	18.4	17.7	-43.1	-10.6	127.1	-23.4	-40.2	4.2
Median (%)	1.0	21.7	-52.3	-10.6	19.7	10.8	-21.9	-3.0
% positive	58.8	59.4	9.1	37.8	75.0	60.0	14.3	46.7
Binomial p	.63	.38	.01	.19	.29	.75	.13	.53
Sample size	17	32	11	37	8	10	7	122

Binomial p is the significance level for the two-tail Fisher sign test that tests whether the median is different from zero.

Parameters needed to compute IRATIO are as in the first row of Table 3.

CIBR = Combined initial bid return = target return + bidder return * (bidder market value/target market value).

PACIBR = (CIBR)/(Probability the first bidder succeeds unconditionally + Probability a later bidder succeeds). The probability of success of the first bidder is estimated from Logit model A2 in Table 4. The probability a later bid succeeds is estimated from Betton-Eckbo (1999), and is .1463.

Table 5.2

Implicit market estimates of the value to the bidder of the takeover (IRATIO), combined initial bid returns (CIBR), and probability-adjusted combined initial bid returns (PACIBR). Sample includes takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997; additionally, for IRATIO the sample is restricted to cases where there was a competing bid for the target. **Logit and bid premia regression models are estimated over same (7/62-12/97) and separate (7/62-6/68; 7/68-12/97) periods.**

		7/62-6/68	7/62-6/68		7/68-12/97	7/68-12/97		
<i>Logit and bid premia regression</i>		<i>Same</i>	<i>Separate</i>		<i>Same</i>	<i>Separate</i>		
<i>Estimated over same/separate periods</i>								
IRATIO								
Mean (%)		41.3	45.8		47.4	50.0		
Median (%)		45.7	45.6		48.3	48.2		
% positive		88.2	88.2		86.7	86.7		
Binomial p		.00	.00		.00	.00		
Sample size		17	17		105	105		
CIBR								
Mean (%)		36.7	36.7		87.5	87.5		
Median (%)		26.9	26.9		28.5	28.5		
% positive		81.3	81.3		72.2	72.2		
Binomial p		.00	.00		.00	.00		
Sample size		64	64		698	698		
IRATIO – CIBR								
Mean (%)		11.8	16.3		17.7	20.2		
Median (%)		14.0	10.6		17.2	17.1		
% positive		58.8	70.1		62.9	63.8		
Binomial p		.63	.14		.01	.01		
Sample size		17	17		105	105		
PACIBR								
Mean (%)		42.8	39.1		111.6	112.5		
Median (%)		38.1	29.6		43.6	44.5		
% positive		81.0	81.0		73.2	73.2		
Binomial p		.00	.00		.00	.00		
Sample size		58	58		668	668		
CIBR – PACIBR								
Mean (%)		-4.7	-1.0		-16.8	-17.7		
Median (%)		-3.0	-1.9		-4.3	-4.4		
% positive		20.7	27.6		28.6	27.8		
Binomial p		.00	.00		.00	.00		
Sample size		58	58		668	668		
IRATIO – PACIBR								
Mean (%)		7.4	14.8		-4.3	-17.7		
Median (%)		-7.0	6.8		-9.5	-4.4		
% positive		47.1	58.8		48.6	46.7		
Binomial p		1.00	.63		.84	.56		
Sample size		17	17		105	105		

Binomial p is the significance level for the two-tail Fisher sign test that tests whether the median is different from zero.

Parameters needed to compute IRATIO and PACIBR are as in the last but one row of Table 3.

CIBR = Combined initial bid return = target return + bidder return * (bidder market value/target market value).

PACIBR = (CIBR)/(Probability the first bidder succeeds unconditionally + Probability a later bidder succeeds). The probability of success of the first bidder is estimated from Logit model A2 in Table 4. The probability a later bid succeeds is estimated from Betton-Eckbo (1999), and is .1463.

The estimated IRATIO and PACIBR using the logit and regression models estimated over same and separate periods are not significantly different at the 10 percent level.

Table 5.3

Implicit market estimates of the value to the bidder of the takeover (IRATIO), combined initial bid returns (CIBR), and probability-adjusted combined initial bid returns (PACIBR). Sample includes takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997; additionally, for IRATIO the sample is restricted to cases where there was a competing bid for the target.

	Parameters needed to compute IRATIO are as in the last but one row of Table 3	Parameters needed to compute IRATIO are as in the first row of Table 3
IRATIO		
Mean (%)	48.4	49.6
Median (%)	48.9	43.4
% positive	87.7	95.3
Binomial p	.00	.000
Sample size	122	129
CIBR		
Mean (%)	83.3	83.3
Median (%)	28.3	28.3
% positive	73.0	73.0
Binomial p	.00	.00
Sample size	762	762
IRATIO – CIBR		
Mean (%)	18.7	21.1
Median (%)	15.6	16.2
% positive	63.9	66.7
Binomial p	.00	.00
Sample size	122	129
PACIBR		
Mean (%)	105.8	105.8
Median (%)	41.1	41.1
% positive	73.8	73.8
Binomial p	.00	.00
Sample size	726	726
CIBR – PACIBR		
Mean (%)	-15.5	-15.5
Median (%)	-4.2	-4.2
% positive	26.7	26.7
Binomial p	.00	.00
Sample size	726	726
IRATIO – PACIBR		
Mean (%)	-.83	4.2
Median (%)	-1.3	-3.0
% positive	46.7	46.7
Binomial p	.53	.53
Sample size	122	122

Binomial p is the significance level for the two-tail Fisher sign test that tests whether the median is different from zero.

Parameters needed to compute IRATIO are as in the first and last but one rows of Table 3.

CIBR = Combined initial bid return = target return + bidder return * (bidder market value/target market value).

PACIBR = (CIBR)/(Probability the first bidder succeeds unconditionally + Probability a later bidder succeeds). The probability of success of the first bidder is estimated from Logit model A2 in Table 4. The probability a later bid succeeds is estimated from Betton-Eckbo (1999), and is .1463.

The estimated IRATIO are not significantly different in the two columns at the 10 percent level.

Table 6

Implicit market estimates of the value to the bidder of the takeover (IRATIO), combined initial bid returns (CIBR), and probability-adjusted combined initial bid returns (PACIBR) for hostile/non-hostile, cash/cash and stock, pre-Williams Act (pre July 1968) / post-Williams Act.

Panel A: Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

	Hostile	Non-Hostile	Cash Only	Cash and Stock	Pre-Williams Act	Post-Williams Act
CIBR						
Mean (%)	32.4	100.4	81.6	87.8	36.7	87.5
Median (%)	27.7	28.7	29.2	25.1	26.9	28.5
Sample size	192	570	552	210	64	698
PACIBR						
Mean (%)	66.3	119.2	101.7	117.7	43.3?	111.2?
Median (%)	55.5?	33.0?	40.5	45.2	33.3	42.9
Sample size	184	542	542	184	58	668

Panel B: Sub-sample includes takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997, and there was a competing bid for the target.

	Hostile	Non-Hostile	Cash Only	Cash and Stock	Pre-Williams Act	Post-Williams Act
IRATIO						
Mean (%)	20.6?	85.9?	50.5	43.0	55.9	47.2
Median (%)	39.9?	60.0?	50.5	41.9	66.4	46.5
Sample size	70	52	88	34	17	105
CIBR						
Mean (%)	28.0	29.6	28.6	28.9	24.3	28.6
Median (%)	26.5	27.3	27.4	26.1	33.6	26.4
Sample size	75	55	90	40	18	112
PACIBR						
Mean (%)	55.9	34.0	42.3	57.9	34.6	48.6
Median (%)	54.0	35.1	43.3	54.1	37.9	50.4
Sample size	71	52	89	34	17	106

Parameters needed to compute IRATIO are as in the last but one row of Table 3.

CIBR = Combined initial bid return = target return + bidder return * (bidder market value/target market value).

PACIBR = (CIBR)/(Probability the first bidder succeeds unconditionally + Probability a later bidder succeeds). The probability of success of the first bidder is estimated from Logit model A2 in Table 4. The probability a later bid succeeds is estimated from Betton-Eckbo (1999), and is .1463.

? indicates the particular estimate of IRATIO, CIBR, or PACIBR is significantly different for the two sub-groups (hostile/non-hostile, cash/cash and stock, pre-Williams Act (pre July 1968) / post-Williams Act) at the 10 percent significance level.

Table 7

Bidder's initial toehold in target, and change in value of the bidder's initial toehold in target computed as target's announcement period abnormal return times number of target's shares owned by bidder one month prior to the bid times target's share price one month prior to the bid. Sample size is 794, and includes takeovers during 1962-1997 where both target and bidder were listed on NYSE, AMEX or NASDAQ.

Bidder's initial toehold in target in percentage

	All targets	Targets where bidder owned at least one share of target prior to bid
Mean	7.23	27.73
Median	0.00	14.52
Sample size	794	201

Change in value of the bidder's initial toehold in target in \$million (1997 dollars)

	All targets	Targets where bidder owned at least one share of target prior to bid
Mean	4.02	15.76
Median	0.00	2.34
Sample size	788	201
# positive	189	189
# zero	587	--
# negative	12	12
Wilcoxon -p	.00	.00
Sign -p	.00	.00

Table 8

Implicit market estimates of the value to the bidder of the takeover (IRATIO), combined initial bid returns (CIBR), and probability-adjusted combined initial bid returns (PACIBR) over **various relative size of bidder to target**.

Panel A: Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

	Ratio of bidder-size to target-size			
	Less than 0.7	Between 0.7 and 1.5	Between 1.5 and 5.0	Greater than 5
CIBR				
Mean (%)	25.3	30.0	32.4	141.8
Median (%)	23.1	28.1	25.9	40.1
Sample size	76	120	204	362
PACIBR				
Mean (%)	37.9	45.0	48.8	169.7
Median (%)	34.7	47.5	36.3	49.8
Sample size	69	112	193	352

Panel B: Sub-sample includes takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997, *and* there was a competing bid for the target.

	Ratio of bidder-size to target-size			
	Less than 0.7	Between 0.7 and 1.5	Between 1.5 and 5.0	Greater than 5
VRATIO				
Mean (%)	46.9	41.8	42.4	69.0
Median (%)	45.5	43.5	44.9	66.6
Sample size	19	29	49	25
CIBR				
Mean (%)	27.5	27.4	26.6	35.6
Median (%)	23.4	26.4	28.0	52.0
Sample size	21	35	49	25
PACIBR				
Mean (%)	44.0	54.7	42.0	48.0
Median (%)	42.9	52.7	42.1	57.3
Sample size	19	30	49	25

Parameters needed to compute IRATIO are as in the last but one row of Table 3.

CIBR = Combined initial bid return = target return + bidder return * (bidder market value/target market value).

PACIBR = (CIBR)/(Probability the first bidder succeeds unconditionally + Probability a later bidder succeeds). The probability of success of the first bidder is estimated from Logit model A2 in Table 4. The probability a later bid succeeds is estimated from Betton-Eckbo (1999), and is .1463.

Table 9

Target, bidder, and combined shareholder returns where the bidder and target were in the same or different industries. "Same industry" is measured two ways: First, the same 4-digit SIC code for the target and bidder. Second, the same 3-digit SIC code for the target and bidder. Implicit market estimates of the value to the bidder of the takeover (IRATIO), combined initial bid returns (CIBR), and probability-adjusted combined initial bid returns (PACIBR).

Panel A: Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

	Same-Industry (4-digit)	Cross-Industry	Same-Industry (3-digit)	Cross-Industry
CIBR				
Mean (%)	89.3	81.5	93.1	78.8
Median (%)	30.5	27.7	34.8?	26.4?
Sample size	172	590	240	522
PACIBR				
Mean (%)	112.9	103.8	109.4	104.2
Median (%)	49.3	38.3	49.5	36.0
Sample size	162	564	225	501
Bidder Return				
Mean (%)	2.34	1.63	3.25?	1.13?
Median (%)	1.84?	.31?	2.28?	-.22?
Sample size	173	599	241	531
Target Return				
Mean (%)	32.8	33.0	34.0	32.4
Median (%)	33.3	29.7	35.1	28.8
Sample size	173	610	242	541

Panel B: Sub-sample includes takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997, and there was a competing bid for the target.

	Same-Industry (4-digit)	Cross-Industry	Same-Industry (3-digit)	Cross-Industry
IRATIO				
Mean (%)	55.9	46.7	52.5	46.8
Median (%)	53.3	45.9	53.3?	44.9?
Sample size	23	99	35	87
CIBR				
Mean (%)	35.8	26.9	37.6	24.8
Median (%)	21.6	29.5	27.3	26.5
Sample size	26	104	39	91
PACIBR				
Mean (%)	65.0	42.4	38.4	67.3
Median (%)	42.1	50.5	54.0	49.8
Sample size	23	100	35	88
Bidder Return				
Mean (%)	-.20	2.55	2.76	1.67
Median (%)	-2.41	2.34	4.17	1.94
Sample size	27	107	40	94
Target Return				
Mean (%)	24.6	30.5	26.4	30.5
Median (%)	21.9	28.0	23.1	27.4
Sample size	26	107	39	94

Parameters needed to compute IRATIO are as in the last but one row of Table 3.

CIBR = Combined initial bid return = target return + bidder return * (bidder market value/target market value).

PACIBR = (CIBR)/(Probability the first bidder succeeds unconditionally + Probability a later bidder succeeds). The probability of success of the first bidder is estimated from Logit model A2 in Table 4. The probability a later bid succeeds is estimated from Betton-Eckbo (1999), and is .1463.

? implies same industry returns are significantly different from the corresponding cross-industry returns at the 10 percent significance level.

Table 10
Sensitivity of IRATIO to Alternative Modeling Specifications

This table provides a sensitivity analysis for IRATIO, the value to the bidder of the takeover, with respect to parameter values in several variations of the basic model. Columns 1 and 2 describe the effects of varying K , the ratio of the expected post-takeover value of the target to the first bidder conditional on a competing bid arriving to the unconditional expected value. Columns 3 and 4 vary γ , the probability that after failure the first bidder will seek and acquire an identical target. Columns 5-7 vary $\Pr(S^2|\theta_3)$, the probability that a second bidder wins given that he enters the contest, in order to allow for the benefits derived by a defeated first bidder from selling his initial shareholding to a competing bidder. Column 6 is based on a first bidder initial shareholding of .025, and Column 7 is based on an initial shareholding of 0.15. Parameters needed to compute IRATIO are as in the last but one row of Table 3.

K	IRATIO (%) mean/median	g	IRATIO (%) mean/median	$\Pr(S^2 q_3)$	IRATIO (%) Mean/median	IRATIO (%) mean/median
1.00	48.4/48.9	0.0	48.4/48.9	0.0	48.4/48.9	48.4/48.9
1.10	61.0/61.0	0.2	50.6/49.6	0.1	48.6/48.9	44.1/42.8
1.20	76.0/75.1	0.4	53.8/50.5	0.3	49.1/48.9	47.7/46.9
1.30	94.1/94.8	0.6	58.7/51.4	0.5	49.5/48.9	51.3/51.7
1.40	116.6/117.8	1.0	86.3/55.0	0.7	49.9/49.4	54.8/55.1

Figure 1
Number of attempted takeovers

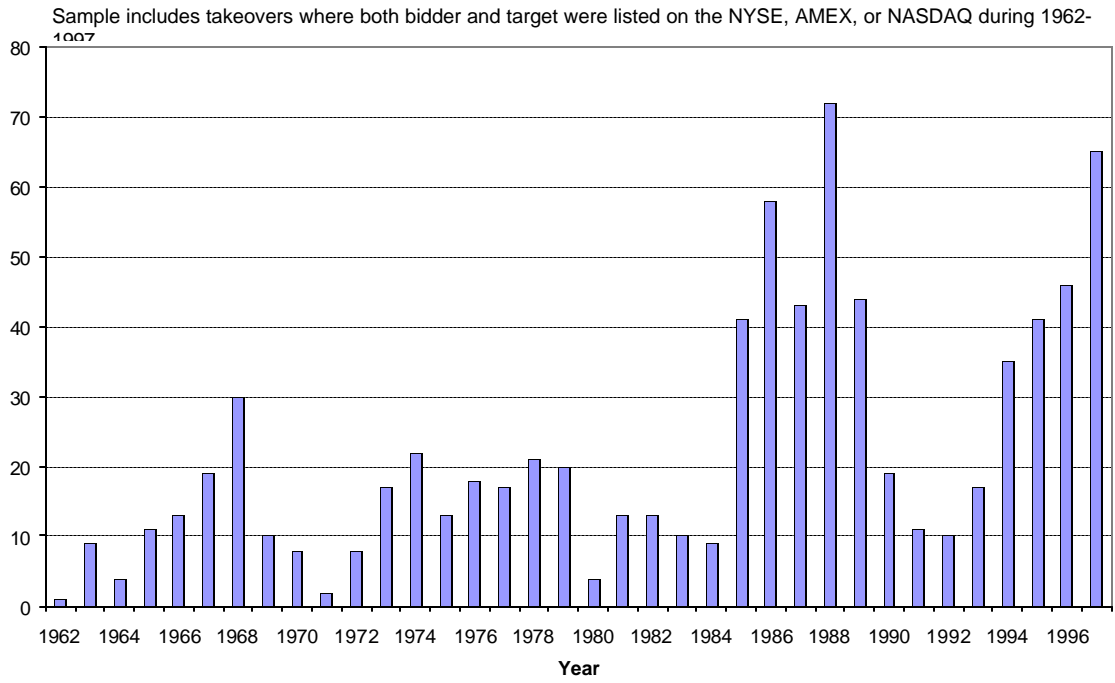


Figure 2
Sample

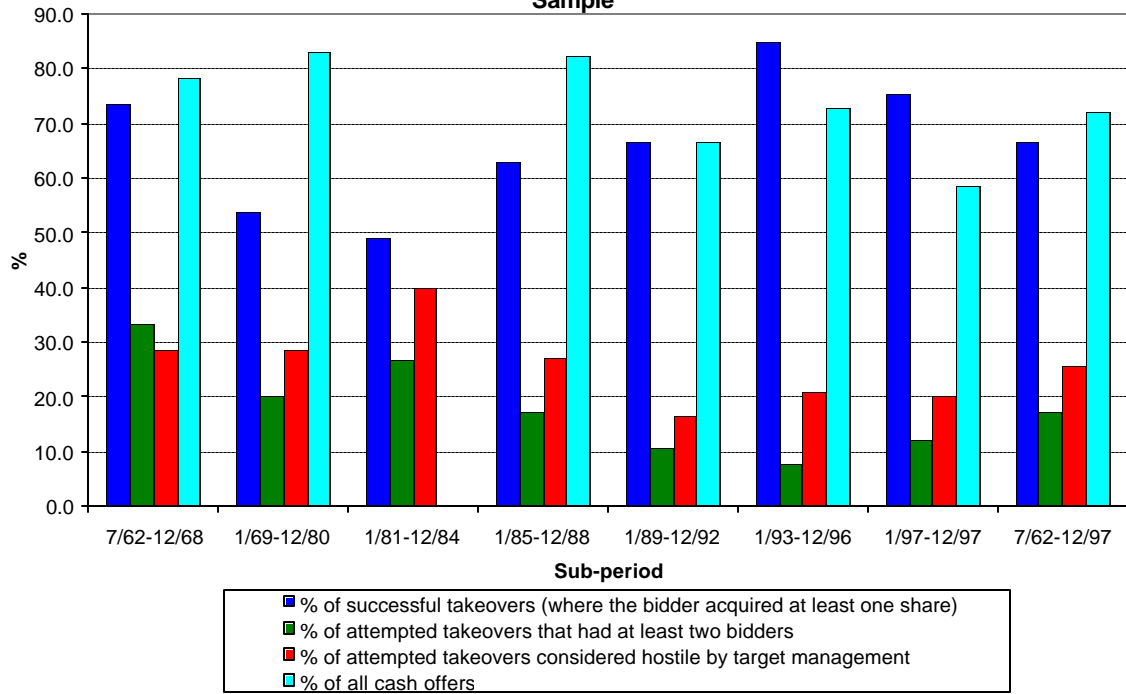


Figure 3
Mean CAR: Attempted Takeovers

Shareholder returns (%): CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period five days before the first bid through five days after. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

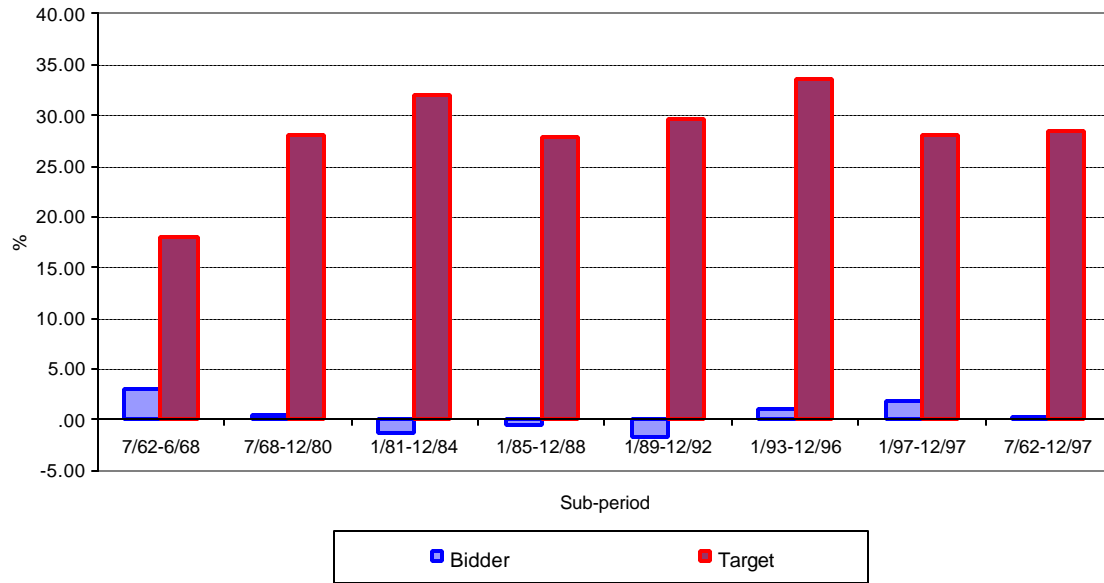


Figure 4
Mean CAR: Successful Takeovers

Shareholder returns(%): CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period five days before the first bid through five days after, for successful takeovers (where the bidder acquired at least one share). Combined return is a weighted average of target and bidder returns, where their weights are their market values as a fraction of the total target and bidder market value. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

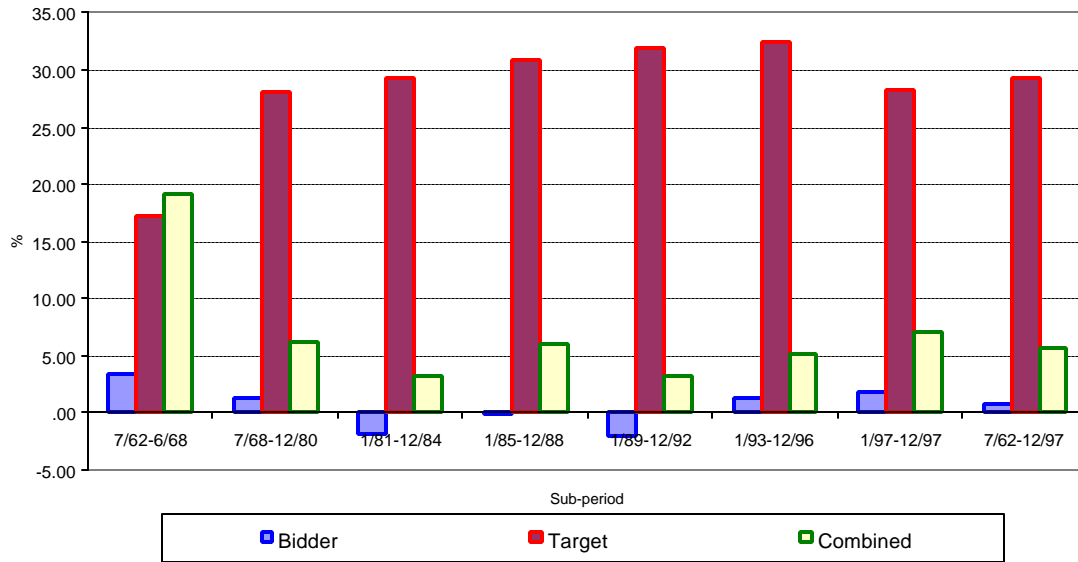


Figure 5
Percentage of Returns that are Positive: Successful Takeovers

Percentage of shareholder returns that are **positive** for successful takeovers (where the bidder acquired at least one share). Combined return is a weighted average of target and bidder returns, where their weights are their market values as a fraction of the total target and bidder market value. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

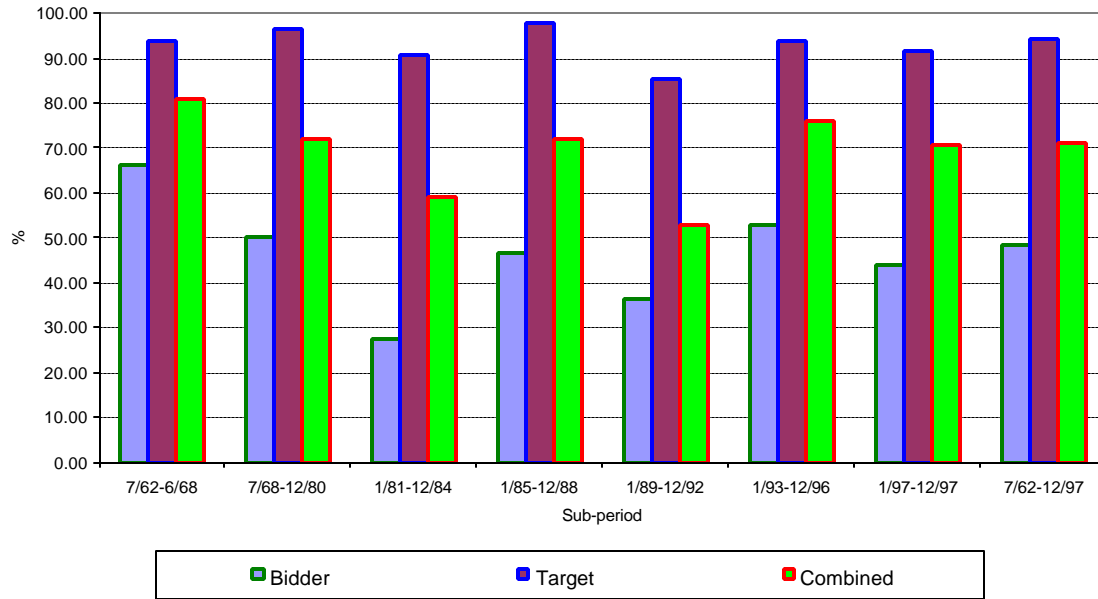


Figure 6
Mean Dollar Return: Successful Takeovers

Target dollar return is target market value (six days before the first bid) times target CAR; similarly for bidder and combined dollar returns. CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period five days before the first bid through five days after. Combined dollar return is a weighted average of target and bidder dollar returns, where their weights are their market values as a fraction of the total target and bidder market value. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

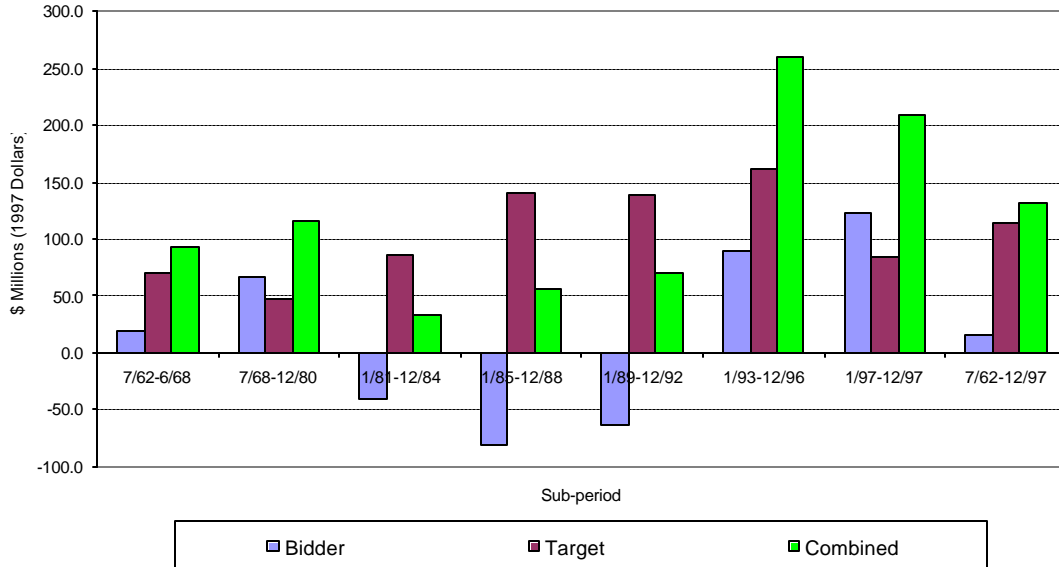


Figure 7
Median Dollar Return: Successful Takeovers

Target dollar return is target market value (six days before the first bid) times target CAR; similarly for bidder and combined dollar returns. CAR is the market-model cumulative abnormal return for the target, bidder, or combined, over the period five days before the first bid through five days after. Combined dollar return is a weighted average of target and bidder dollar returns, where their weights are their market values as a fraction of the total target and bidder market value. Sample includes 794 takeovers where both bidder and target were listed on the NYSE, AMEX, or NASDAQ during 1962-1997.

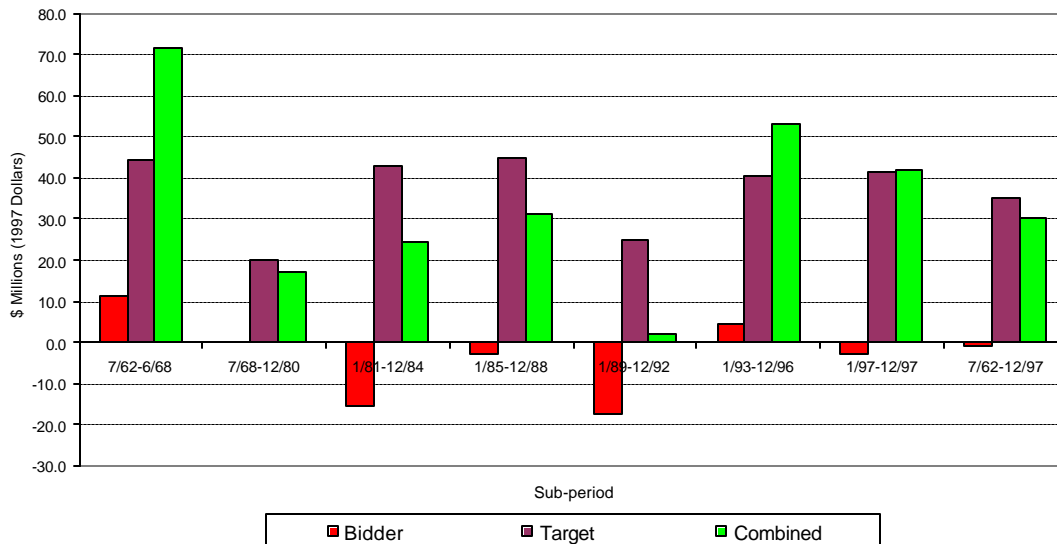


Figure 8
Histogram of IRATIO

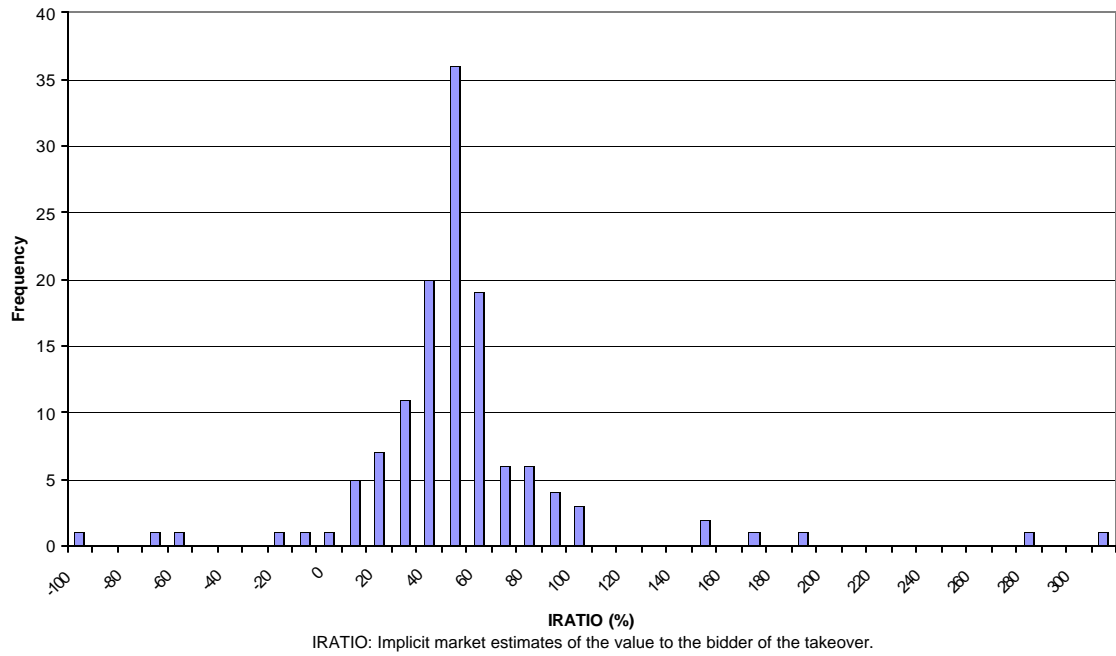
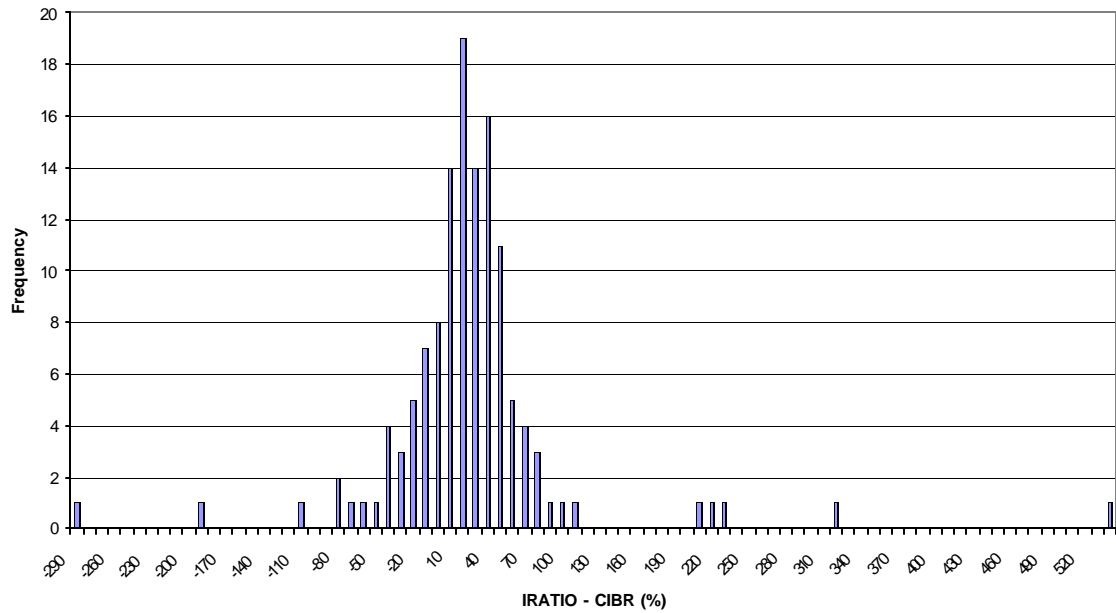
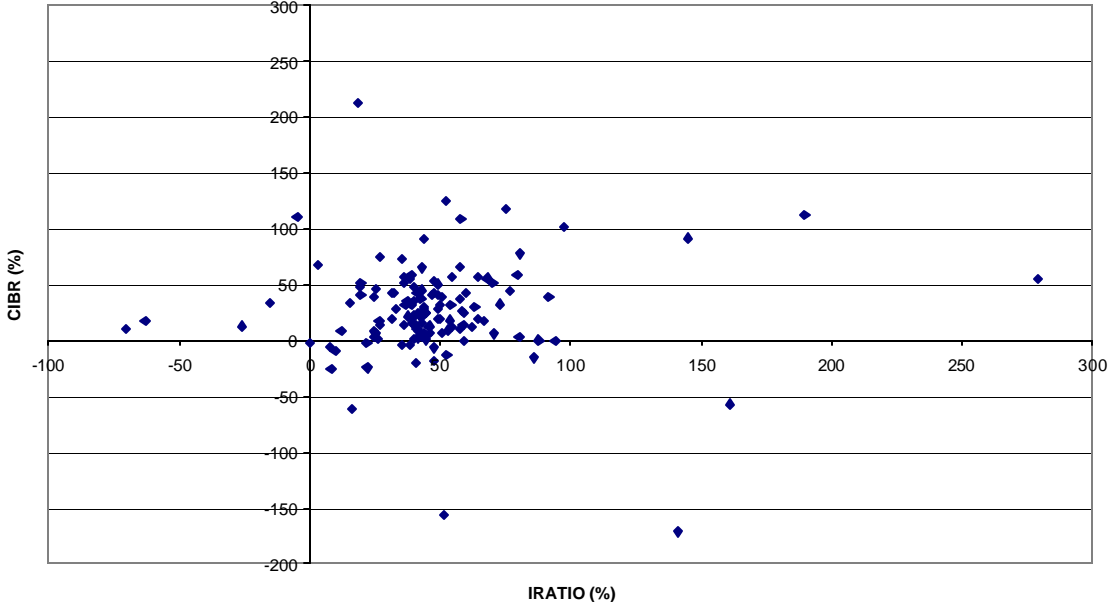


Figure 9
Histogram of IRATIO - CIBR



IRATIO: Implicit market estimates of the value to the bidder of the takeover.
CIBR: Combined initial bid return = target return + bidder return * (bidder market value/target market value).

Figure 10
Scatter Plot of IRATIO and CIBR



IRATIO (%)
IRATIO: Implicit market estimates of the value to the bidder of the takeover.
CIBR: Combined initial bid return = target return + bidder return * (bidder market value/target market value).