Overinvestment, Tobin's q and gains from foreign acquisitions

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Abstract

U.S. acquisitions of foreign firms, show that bidder abnormal returns are substantially higher for high q bidders than low q bidders; further, bidder returns are significantly and inversely related to free cash flow for low q bidders but not for high q bidders. There is also evidence that financial markets reward more the initial than subsequent foreign investments of value maximizing U.S. multinational firms. Finally, bidder returns are found to be higher when foreign acquisitions take place in low-tax-rate jurisdictions; in addition, the results show that the 1986 Tax Reform Act exerted a negative effect on bidder returns.

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Over the last two decades the predominant share of foreign direct investment (FDI) has been channelled through acquisitions and joint ventures. The Commerce Department reports that acquisitions accounted for about half of the total FDI [1] In

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[1] See Survey of Current Business, U.S. Department of Commerce several issues over the 1981-1990 period. The U.S. Department of Commerce figures on FDI are based on a historical cost basis and therefore may underestimate the actual value of U.S. foreign acquisitions. This article has been presented to seminar participants at the University of Limburg, Gothenburg University, Stockholm School of Economics, Copenhagen Business School, and the Institute of Economic Research of Lund University.

1985, U.S. corporations acquired $1.4 billion of foreign firms, $5.2 billion in 1986, $11.0 billion in 1987, $14.5 billion in 1988 and $22.2 billion in 1989.

While previous research on FDI, has focused on the level of investment flows or the behavior of multinational corporations (see for instance, Caves (1971), Agmon and Lessard (1977), Errunza and Senbet (1981), Rugman (1983) and Froot and Stein (1991)), Doukas and Travlos (1988) provide direct evidence on the effects of U.S. purchases of foreign firms using bidders' share price data. They document that shareholders of U.S. bidders, on average, receive no gains from acquisitions of foreign firms. They report, however, positive gains to U.S. bidding firms when the expansion is into less developed economies which are not already the site of existing operations by the bidding firm. This result has been interpreted by Doukas and Travlos (1988), as evidence in support of the multinational network hypothesis which postulates that foreign investment decisions enhance the expanding firm's ability to benefit from the systemic advantages inherent in a multinational network. [2]

Mork and Yeung (1992) also examine the effects of international acquisitions on stock prices of U.S. firms. They report that the firm's market value is positively associated to its multinational operations due to the firm's information-based intangible assets (i.e., the magnitude of Tobin's q ratio). Their empirical results appear to support the internalization theory of FDI. [3] Lang and Ofek (1995) report a positive and significant relationship between two-day excess returns and firms' Tobin's q ratio of U.S. investments (mostly joint ventures −74% of their sample) in Eastern Europe over the 1989–1991 period. [4]

Although the results of previous studies by Doukas and Travlos (1988), Morck and Yeung (1992), and Lang and Ofek (1995) are insightful, U.S. foreign acquisitions could be driven by managers' incentives (see Jensen (1986)) and tax factors (see Scholes and Wolfson (1990, 1992)) (i.e., the 1986 U.S. Tax Act) as well. Jensen (1986) argues that firms with substantial free cash flows (i.e., cash flow in excess of that required to fund all projects that have positive net values when discounted at the relevant cost of capital) will have a tendency to overinvest by accepting marginal investment projects with negative net present values. In particular, Jensen (1986) notes that managers are often tempted to use free cash flows to expand the size of the company, even if the expansion is not profitable.

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[2] See Doukas and Travlos (1988) for a comprehensive description of the multinational network theory.

[3] The internalization hypothesis states that direct foreign investments occur when a firm can increase its value by internalizing markets for certain of its intangibles (i.e., production skills, patents, marketing abilities, consumer good will or managerial skills). Because such intangible assets are based largely on proprietary information and possess public good properties they can not be exchanged at arm's length to benefit its shareholders. A firm can overcome these transaction difficulties by internalizing the markets for the intangible assets through foreign expansion of its operations.

[4] Evidence consistent with the internalization hypothesis does not rule out the overinvestment hypothesis.

This is because managers feel that their compensation, power, prestige and job satisfaction are enhanced by managing a growing company. [5] These objectives are likely of little, if any, importance to investors. This divergence of interests may reduce the value of the firm.

In this context, international investments may be construed as one way managers spend cash instead of paying it out to shareholders. Therefore, Jensen's (1986) free cash flow theory implies that managers of overinvested (i.e., beyond optimal size) firms, with large free cash flows, are more likely to invest in low-benefit or even value-destroying projects. Consequently, the "overinvestment hypothesis" predicts that the average bidder return in response to announcement of foreign acquisitions is smaller for overinvesting (i.e., poorly managed or low q ratio) firms than for value maximizing (i.e., well-managed or high q ratio) firms. To distinguish between overinvesting and underinvesting firms, this study employs empirical estimates of Tobin's q ratio. Assuming that a firm's investments are scale-expanding with decreasing marginal efficiency of capital, an average q less than unity suggests overinvestment. [6] If a firm, however, is undertaking value-maximizing levels of investment, its average q will exceed unity. [7], [8]

In this paper a thorough examination of tax factors affecting foreign direct investment decisions is also conducted. This analysis is designed to provide additional insights into the effects of the 1986 Tax Act on capital flows across national boundaries. The U.S. 1986 Tax Act created a serious foreign tax credit problem for many U.S. multinational firms which stimulated acquisitions of corporations that operate in low-tax countries (Scholes and Wolfson, 1992). While previous studies (e.g., Scholes and Wolfson (1990), and Servaes and Zenner (1994)) focus only on the effects of the U.S. tax code on foreign capital flows into the U.S., this study examines its impact on U.S. foreign direct investment flows.

This paper reports the results of an event-time analysis of stock returns of 463 international acquisitions over the 1975–1989 period. The evidence shows that the average return associated with foreign acquisition announcements is higher for

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[5] Management compensation is, at best, weakly related to the firm's profitability while positively tied to growth (see Murphy, 1985).

[6] Because Tobin's q ratios used in this study are estimates of average q's rather than the marginal q's and based on the assumption that firm's investment is scale-expanding, for other types of investment projects, an average q less than unity may not be a sufficient condition for overinvestment. If, however, investors believe that marginal q's are directly associated with average q's, then the conditional free cash flow multinational network hypothesis predicts that the average returns associated with firm's multinational expansion will be larger for firms with average q's greater than unity than for those with average q's less than unity.

[7] See Lang and Litzenberger (1989) for an extensive description of Tobin's q ratio as an indicator of overinvestment. An alternative interpretation of Tobin's q ratio is that it measures management's performance (see Lang et al., 1989).

[8] Since q may be industry specific, the industry average may be used as an alternative cut-off point to separate high q firms from low q firms (see Servaes, 1991).

bidding firms with high q ratios than for those with low q ratios. In particular, high q bidders gain significant positive abnormal returns when the target firm is located in countries which are not already the site of existing operations by the bidding firm. The worst results, in terms of value creation, are obtained by low q bidding firms targeting foreign firms in countries which are already the site of existing operations by the bidder. Although this empirical evidence is not inconsistent with the findings of previous research (i.e., Morck and Yeung (1992) and Doukas and Travlos (1988)), it is also consistent with the overinvestment hypothesis which anticipates that the average bidder return in response to foreign acquisition (investment) announcements is larger for value maximizing than overinvesting firms. Further tests involving low q U.S. bidding firms revealed a negative association between bidder returns and free cash flows in conformity with the predictions of the overinvestment hypothesis. These results suggest that poorly performing bidders with free cash flows tend to waste them in unprofitable foreign investment projects rather than pay them out to shareholders.

Finally, testing for the impact of taxes and the 1986 Tax Reform Act on bidder returns, it is shown that bidder gains are significantly higher when targets are in low-tax-rate jurisdictions while bidder gains were adversely affected by the 1986 tax reform. Both results are consistent with Scholes and Wolfson's (1990, 1992) conjecture that tax policy plays an important role in U.S. firm's foreign investment decisions.

The remainder of the paper is organized as follows. The next section describes the data and statistical methodology employed in the analysis. Section 2 presents the results and Section 3 provides a summary and concluding remarks.

1. Sample and abnormal returns

1.1. Sample collection

The sample used in this study consists of U.S. bidding firms engaged in international acquisitions over the period beginning January 1975 and ending December 1989. The entire sample is based on completed foreign acquisition transactions and the firms included in it are contained in the Center for Research in Securities Prices (CRSP) and COMPUSTAT data tapes. Acquisition announcements were obtained by searching the Foreign Acquisitions Roster published in Mergers and Acquisitions, Dow Jones Retrieval Service database, which provides news-service articles and selected stories from the Dow Jones News Wire (DJNW, the Broad Tape) and the Wall Street Journal Index (WSJI).

The event date of each foreign acquisition is the date of the offer's initial announcement in the Wall Street Journal (WSJ). Firms with concurrent major corporate events (i.e., other takeovers, exchange offers, new offerings of securities and announcements of new contracts) for the twenty-day period prior to the announcement day ($t = 0$) were excluded from the final sample. As shown in

Table 1
Frequency distribution of U.S. acquisitions of foreign firms

Year	Frequency	%
1975	14	3.0
1976	25	5.3
1977	20	4.3
1978	36	7.8
1979	60	13.0
1980	46	10.0
1981	31	6.7
1982	42	9.0
1983	27	5.8
1984	20	4.3
1985	28	6.0
1986	25	5.3
1987	30	6.4
1988	27	5.8
1989	32	6.9
Total	463	100.0

Table 1, this search and screening procedure produced a sample of 234 U.S. firms involved in 463 foreign acquisitions.

The Moody's Directory of Corporate Affiliations, the Stopford's World Directory of Multinational Enterprises (1992) and the Directory of American Firms Operating in Foreign Countries (1992) contain information about the U.S. bidding firms' operations (exposure) in the countries of the target firms. Moody's Industrial Manuals were consulted to ensure that the sample of pure domestic firms contained bidding firms without any foreign operations prior to the acquisition announcement. This information is used to stratify the sample according to the bidder's prior international experience (i.e., multinational corporations (MNCs) operating in the target firm's country, MNCs not operating in the target firm's country and pure domestic firms investing internationally for the first time).

1.2. Estimation of abnormal returns

To assess the effects of foreign investment decisions on share prices, the abnormal returns of U.S. bidding firms are computed using standard event-study methodology. The procedure used is described in detail in Mikkelson and Partch (1986). Market model parameters are estimated using continuously compounded returns for the 200-day period, starting 220 days before the foreign acquisition announcement date in the WSJ. The CRSP value weighted index is used as a proxy for the market return. To value the statistical significance of the abnormal returns, the standardized abnormal returns are computed by dividing abnormal returns by the estimated standard deviation of the prediction from the market-model

regression. Finally, to test whether the standardized abnormal return is significantly different from zero, the Z-statistic is estimated by summing the standardized abnormal returns and dividing this sum by the square root of the number of observations in the sample.

1.3. Tobin's q estimates

Tobin's q estimates were obtained using the Perfect and Wiles (1994) method which is a modified version of the Lindenberg and Ross (1981) algorithm for generating firm q values. The source of the data used to estimate q values is contained in the COMPUSTAT data tape, The Business Conditions Digest and the Moody's Industrial Manuals. Perfect and Wiles (1994) determine the market value of the firm by the sum of (1) year-end value of common stock (2) preferred dividends capitalized by the Standard and Poor's preferred stock yield index (3) year-end market value of the firm's long-term debt and (4) year-end book value of the firm's short-term debt with maturity less than one year.

To obtain replacement cost estimates, the basic Lindenberg and Ross (1981) methodology is used except that firm-reported asset replacement cost data are not necessary to estimate the replacement value of the firm's assets according to the Perfect and Wiles' (1994) method. This method also assumes that the rate of technical progress is zero. The main advantage of the Perfect and Wiles (1994) procedure is that q ratios can be generated for all firms irrespective of the time period based on data available directly from the COMPUSTAT database. Their q estimates are shown to be highly correlated with q estimates obtained using the Lindenberg and Ross (1981) approach (see Perfect and Wiles (1994)).

Tobin's q is defined as

$$q = (Comval + Prefval + LTDebt + STDebt)/RC$$

where *Comval* is the year-end value of the firm's common stock (i.e., firm's year-end per-share outstanding); *Prefval* is the estimated year-end market value of the firm's preferred stock (i.e., firm's total preferred dividends capitalized by the Standard and Poor's preferred stock yield index); *LTDebt* measures the value of the long-term debt with maturity greater than one year (see Appendix for the estimation of *LTDebt* and *RC*); *STDebt* is the year-end book value of the firm's short-term debt with maturity less than one year.

2. Empirical results

2.1. Tobin's q and foreign acquisition returns

Table 2 presents the two-day average abnormal returns for foreign acquisitions by U.S. bidding firms. The two-day announcement period cumulative abnormal

Table 2
Two-day ($t = -1, 0$) average cumulative abnormal returns on foreign acquisition announcements for
U.S. bidding firms with average q ratios less than one and for firms with average q ratios greater than
one over the period 1975–1989 [a]

Sample	Number of observations [b,c]	Two-day average abnormal returns (%)	Z-value	% of positive excess returns
$q > 1$	270	0.41	2.53	85.5
$q < 1$	193	-0.18	1.25	44.3

[a] Estimates of q ratios are obtained for the year preceding the foreign acquisitions. Similar results were
obtained when the industry average or the industry median were used as alternative cut-off points to
separate between high and low q firms.
[b] 89.6% of high q firms, which were involved in two acquisitions at least, experienced a positive
market reaction.
[c] 91.3% of low q firms, which were involved in two acquisitions at least, experienced a negative
market reaction.

returns for firms with average q ratios greater than unity (i.e., value-maximizing
firms) is 0.41% ($Z = 2.53$), statistically significant at the 5% level. On the other
hand, bidder returns are negative and statistically insignificant at any conventional
level for overinvested firms (i.e., firms with average q ratios less than unity). The
difference is significant at the 1% level. That is, foreign acquisition announce-
ments have a significant impact on the stock price of the bidding firm with
average q ratios greater than unity, but no impact for bidding firms with q ratios
less than unity. This result is consistent with Jensen's overinvestment hypothesis
which predicts that the average bidder return in response to foreign acquisition
(investment) announcements is larger for value maximizing ($q > 1$) than overin-
vesting ($q < 1$) firms. Alternatively, it may suggest that low q bidder's foreign
acquisition announcement signals to the market that its internal investment oppor-
tunities are worse (i.e., less valuable) than previously believed because it has to
invest outside the firm in a foreign location.

The focal point in Jensen's overinvestment hypothesis is embedded in the
existence of the agency problem between managers and shareholders over the
distribution of the free cash flows generated by the firm. The overinvestment
hypothesis implies that cash flows increase the agency costs of firms with poor
investment opportunities (Stulz (1990)). [9] Hence, it is expected that firms with
large cash flows and low q are more likely to engage in foreign acquisitions that
do not enhance shareholders' wealth, since free cash flow considerations are
expected to have a greater impact on management's decisions when cash flows are
large (Lang et al., 1991). High q firms, however, are more likely to possess
positive NPV projects and use their internally generated funds productively.

[9] Stulz (1990) develops a model that presents the conditions that need to be met for the free cash
flow hypothesis to hold.

Table 3
OLS estimates of coefficients in cross-sectional regressions of two-day (1,0) cumulative abnormal returns for U.S. bidding firms at the announcement of foreign acquisition bids on cash flows (*CF*) for high and low $-q$ bidders: 1975–1989 (*t*-values in parentheses)

Sample	Number of observations	Intercept	CF [a]	$\bar{R}^2(\%)$
$q > 1$	270	0.103 (0.58)	0.524 (0.71)	1.84
$q < 1$	193	0.124 (0.34)	-0.947 $(-2.86)^{**}$	2.97

[a] The cash flow variable is defined as cash flow divided by total assets, for the fiscal year preceding the foreign acquisition announcement. Large cash flow firms are firms with cash flow in excess of the sample median. This procedure produced 270 observations for 115 high q firms and 193 observations for 74 low q firms with free cash flows.
* Significant at 0.10 level; ** significant at 0.05 level; *** significant at 0.01 level.

As foreign acquisitions for high q firms are expected to represent positive NPV projects, the stock-price reaction should not be related to the bidder's cash flow. The overinvestment hypothesis, then, implies that, cross-sectionally, the bidder's excess return is negatively related to the cash flow of the firms with poor investment opportunities (i.e., low q firms) and unrelated to the cash flow of firms with good investment opportunities (i.e., high q firms). [10], [11]

Table 3 provides evidence supporting the hypothesis that the bidder's abnormal return is a decreasing function of cash flow for low q firms and unrelated to cash flow for high q firms. The first regression shows, as expected, that high q bidder's abnormal returns are not related, in any economic and statistical sense, to cash flows. The second regression, however, shows that low q bidder's abnormal returns are negatively related to cash flows. This result also suggests that the larger the cash flow of a low q firm, the lower its gain from a foreign acquisition. The estimate of the coefficient for the cash flow variable for low q bidders implies that the free cash flow effect is statistically significant. A cash flow increase by 1% of the bidding firm's total assets, measured by book value, is expected to cause a decrease in bidder's gain equal to 0.947% (approximately 1%) of the value of bidder's common shares. In broad terms, these results are consistent with the evidence reported by Lang et al. (1991), which shows that domestic acquisitions by U.S. bidders with poor investment opportunities and high free cash flows

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[10] See Lang et al. (1991) for a comprehensive discussion of the empirical implications of the free cash flow/overinvestment hypothesis.

[11] Cash flows are determined using the cash flow measure of Lehn and Poulsen (1989) and Lang et al. (1991) (i.e., operating income before depreciation minus interest expense, taxes, preferred dividends, and common dividends), all divided by total assets for the fiscal year preceding the foreign acquisition announcement.

decrease their shareholders' wealth because free cash flow increases the agency costs of those firms.

Overall, the evidence indicates that foreign acquisitions have a significant positive impact on the stock price of bidding corporations with high q ratios. Consistent with Jensen's overinvestment hypothesis, the results also show that bidder's abnormal return is negatively related with the cash flow of low q firms and unrelated to the cash flow of high q firms.

2.2. Analysis of cross-sectional regression results

To gain further insights into the valuation effects of foreign acquisitions, we investigate how the bidder's announcement period abnormal returns relate to bidder q ratios and other control variables, as suggested in the literature.

Table 4 lists OLS estimates of the coefficients in cross-sectional regressions which relate the two-day $(-1,0)$ standardized cumulative abnormal return to bidder's q dummy variable, firm, industry and market characteristics. The q dummy variable, Q, is equal to one if the company's q ratio is larger than one. Previous research has also examined the degree of international exposure of the bidding firm [12] $(DOE = 0$ if the bidder has prior operations in the target firm's country, 1 otherwise), the economic development of the target firm's country $(DED = 0$ for developed countries, 1 for less developed), [13] the industrial related-ness based on the first two SIC digits between acquiring and target firms $(DIR = 0$ if the acquirer has prior experience in the target's line of business or a closely related business, 1 otherwise) and the dollar exchange rate, ERI. [14] We measure the exchange rate levels of the U.S. dollar relative to the target's home currency. An exchange rate index is constructed for each country associated with an acquisition initiated by a U.S. firm. The exchange rate is set equal to one at the end of 1973. The value of this index at the date of the acquisition is used as the explanatory variable in cross-sectional regression where the two-day $(-1,0)$ standardized cumulative abnormal return is the dependent variable. Froot and Stein (1991), and Caves (1988) have documented a negative correlation between the dollar exchange rate and the level of foreign direct investment. The method of

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[12] Foreign acquisitions may be more beneficial if the acquiring firm has prior overseas experience, since its overseas presence may reduce the transactions costs associated with the acquisition and integration process into the bidder's operations. Doukas and Travlos (1988), however, provide evidence that U.S. acquiring firms gain higher returns when they invest in a foreign country for the first time. Initial investments in a country may allow a company to arbitrage institutional, product and capital market imperfections that may exist across countries.

[13] The distinction between developed and less developed countries was based on the country classification followed by the International Monetary Fund (IMF), the Organization of Economic Cooperation and Development (OECD) and the World Bank.

[14] See Errunza and Senbet (1981), Doukas and Travlos (1988), Froot and Stein (1991), and Caves (1988) for the relevance of the control variables.

Table 4

OLS estimates of coefficients in cross-sectional regressions of the two-day (– 1, 0) cumulative abnormal returns for U.S. bidding firms at the announcement of foreign acquisition bids on Tobin's Q^a, the degree of international exposure of the bidding firm $(DOE)^b$, the degree of economic development of the target firm's country $(DED)^c$, the degree of industrial relatedness between bidding and acquiring firms $(DIR)^d$, the exchange rate index $(ERI)^e$, the method of payment $(MOP)^f$ and free cash flows $(FCF)^g$: 1975–1989 (t-values in parentheses)

	Intercept	Q	DOE	DED	DIR	ERI	MOP	FCF	$\bar{R}^2$(%)	F
A. Entire sample[h]; N = 463										
(1)	-0.079 (-0.46)	0.121 (1.84)*	0.435 (1.97)**						3.51	8.12 (0.35)
(2)	-0.084 (-0.79)	0.110 (1.92)*	0.347 (1.94)*	0.814 (3.05)***					3.62	6.72 (0.75)
(3)	-0.115 (-0.87)	0.145 (1.87)*	0.301 (1.88)*	0.810 (2.95)***	0.034 (0.59)				3.64	4.45 (1.81)
(4)	-0.057 (-0.85)	0.131 (1.85)*	0.305 (2.05)**	0.721 (2.45)**	0.047 (0.55)	-0.016 (-1.93)*			3.72	4.58 (2.05)
(5)	-0.042 (-0.64)	0.134 (1.88)*	0.289 (2.07)**	0.730 (2.14)***	0.045 (0.46)	-0.018 (-1.94)*	0.092 (1.05)		3.75	4.65 (2.14)
(6)	-0.035 (-0.70)	0.142 (1.97)*	0.258 (1.86)*	0.710 (2.05)***	0.044 (0.40)	-0.015 (-1.84)*	0.065 (0.88)	-0.641 (-2.14)***	4.01	5.10 (2.31)
B. Bidders with operations in the target's country; N = 285										
(7)	0.057 (0.05)	0.14 (1.98)*		0.704 (1.84)*					3.29	3.43 (6.58)
(8)	-0.014 (-0.26)	0.25 (1.85)*		0.675 (1.76)*	0.103 (0.48)				3.31	2.33 (9.11)
(9)	-0.012 (-0.34)	0.19 (1.72)**		0.640 (1.80)*	0.083 (0.32)	-0.012 (-1.95)*			3.35	3.44 (7.58)
(10)	-0.015 (-0.24)	0.16 (1.75)***		0.587 (1.75)*	-0.071 (-0.25)	-0.015 (-1.95)*	0.070 (0.94)		3.37	3.55 (6.47)
(11)	-0.010 (-0.32)	0.18 (1.71)***		0.593 (1.82)*	-0.060 (-0.47)	-0.010 (-1.83)*	0.051 (0.67)	-0.562 (2.12)***	3.65	3.97 (5.54)

C. Bidders without operations in the target's country; N = 140

(12)	−0.062 (−0.02)	0.820 (2.25)**						4.04	6.12 (2.15)
(13)	0.43 (2.02)**	0.29 (2.05)**	−0.358 (−0.82)	0.864 (2.32)**	0.257 (1.08)			4.83	5.46 (2.44)
(14)	0.35 (2.24)**	−0.045 (−0.77)	0.749 (2.03)**	0.124 (1.12)	−0.025 (−2.11)**			4.85	6.47 (2.55)
(15)	0.28 (2.05)**	−0.052 (−0.65)	0.618 (2.14)**	0.241 (1.84)	−0.029 (−1.87)*	0.026 (0.54)		4.87	5.79 (2.57)
(16)	0.26 (2.01)*	−0.035 (−0.71)	0.602 (2.10)**	0.150 (1.07)	−0.027 (−1.82)*	0.014 (0.35)	−0.547 (−2.25)***	5.01	6.40 (2.74)

[a] Q is a dummy variable for the ratio of the market value of the firm's securities to its replacement cost (i.e., $Q = 0$ if the firm's q ratio is less than one, 1 if the firm's q ratio is greater than one).

[b] DOE is a dummy variable for the degree of international exposure of the bidding firm (i.e., $DOE = 0$ if the bidder has prior operations in the target firm's country, 1 otherwise).

[c] DED is a dummy variable for the degree of the economic development of the target firm's country (i.e., $DED = 0$ if the target is located in a developed country, 1 if it is located in a less developed country).

[d] DIR is a dummy variable for the degree of industrial relatedness (based on the first two SIC digits) between acquiring and target firms (i.e., $DIR = 0$ for an acquisition in the same industry, 1 otherwise).

[e] ERI is an index of the real dollar exchange rate (base year end of $1973 = 1$).

[f] MOP is a dummy variable that takes the value of one if the acquisition bid is all cash and zero otherwise.

[g] FCF is a dummy variable equal to one for firms with CF in excess of the sample median and zero otherwise.

[h] The entire sample includes 38 bidding firms without any prior international operations. Bidder abnormal returns were also regressed against all variables excluding the Tobin's Q dummy. The regression results appear to be similar to those reported above, suggesting that cash flows for low q firms are inversely related with the bidder's abnormal return as shown above.

* Significant at 0.10 level; ** significant at 0.05 level; *** significant at 0.01 level.

payment measure (MOP) draws from research on domestic acquisitions (Travlos (1987) and Asquith et al. (1987)) which reveals that bidder returns decrease with the fraction of the premium to be paid in the bidder common shares. An indicator variable taking the value of one if the acquisition bid is all cash and zero otherwise is included in the regression analysis to capture this effect. [15] The influence of free cash flows (FCF) is examined as well ($FCF = 1$ for firms with CF in excess of the sample median and zero otherwise). The cash flow/TA for low q firms indicator variable tests the hypothesis that the bidder's abnormal return is a decreasing function of cash flow for low q firms and unrelated to cash flow for high q firms.

The results are shown in Table 4. The evidence indicates that the magnitude of the bidder firm's q ratio is an important determinant of foreign acquisition gains. The bidder's q ratio is significant and positively related to returns in all regressions. However, high q bidders gain larger positive abnormal returns when the target firm is located in countries when bidders do not have any operations in the target's country. Weaker results, in terms of value creation, are obtained by high q bidders targeting foreign firms in countries where bidders do have operations in the target's country. Furthermore, the free cash flow variable, consistent with the previous findings, continuous to suggest that low q bidders' abnormal returns are negatively related to cash flows. That is, firm's without growth opportunities and substantial free cash flows tend to overinvest (i.e., accept investment projects with negative net present values) abroad.

Panel A of Table 4 contains regression results to explain cross-sectional variation in bidder wealth gains based on the entire sample. The first regression demonstrates that the coefficient of the bidding firm's q ratio is positive and significant. This result implies that bidder wealth gains are significantly higher in foreign acquisitions for high q bidders than low q bidders. Furthermore, as shown in the next four regressions this significant difference between high and low q bidders persists after controlling for the bidder's degree of international exposure, [16] the degree of the economic development of the target firm's country, the degree of industrial relatedness between bidding and target firms, the influence of the dollar exchange rate and the method of payment.

If Tobin's q ratio measures the quality of a firm's current and future investments under existing management, one would expect overinvested firms to waste free cash flows in unprofitable foreign investments rather than pay them out to

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[15] Financing a foreign acquisition with equity amounts to issuing equity. As Myers and Majluf (1984) show, a negative announcement effect prevails for acquisitions financed by equity unless the NPV of the acquisition conditional on cash financing is sufficiently large to offset· the release of adverse information about the bidder's market value through the issue of equity.

[16] The coefficient on the DOE indicator variable shows that the returns to foreign acquisitions are higher for bidders without operations in the target's country than bidders with operations in the target's country. This coefficient is significantly different from zero for all the first four regressions.

shareholders. Cross sectionally, then, the overinvestment hypothesis implies that the bidder's excess return is positively associated with the magnitude of the q ratio and inversely related to the free cash flow variable for low q firms. Regression (6) provides further support for Jensen's overinvestment hypothesis as financial markets appear to reward only value-maximizing firms, high q firms, while bidder returns are found to be negatively associated with the free cash flows of low q bidders. In other words, the greater the cash flow of a low q bidder, the lower its gain from a foreign acquisition in relation to a high q bidder.

Previous research by Lang et al. (1989) and Servaes (1991) has shown that the largest total gains in domestic takeovers occur when a high q bidding firm acquires a low q firm. Although there is no knowledge of foreign target returns and q ratios, due to data limitations, the findings reported so far are consistent with the evidence in these studies in the sense that high q bidders gain more than low q bidders. Furthermore, the results seem to suggest that foreign acquisitions create wealth for high q bidders by leading target's resources to a better global use.

Regressions (2) through (4) reveal that the coefficients of the *DOE, DED* and *ERI* variables have the predicted sign and are significant. These results are consistent with the evidence reported by Doukas and Travlos (1988) which shows that U.S. bidders' gains are larger when they expand into new markets and in less developed economies than the U.S. economy. In addition, the impact of the exchange rate, *ERI*, on bidder's abnormal returns is consistent with Froot and Stein's (1991) conjecture of a negative association between the dollar exchange rate and the level of foreign direct investment. The coefficient of the MOP indicator variable appears to be insignificant. The inclusion of the MOP variable does not alter the magnitude of the other variables. The *FCF* variable is significantly and inversely related, as expected, to bidders' abnormal returns.

Panel B of Table 4 reports regression results for U.S. bidders with operations in the target's country. That is, regressions (7) through (11) explore the role of prior exposure in the country of the target firm. In Panel C of Table 4, the reported regression results are based on the sample of bidders without prior exposure in the country of the target firm. The motivation for dividing the sample between bidders with and without prior exposure in the target's country is that initial investments in a country may allow a firm to exploit more of any cross-country imperfections. [17]

The results show that bidders' cumulative abnormal returns in foreign acquisitions are greater when U.S. bidders invest in foreign countries for the first time; furthermore, U.S. bidding firms continue to gain more from acquisitions involving target firms located in less developed countries while the exchange rate and free cash flow variable for low q firms retain their influence on bidder gains. In regressions (12) through (16) the coefficient of q ratio is 0.43, 0.29, 0.35, 0.28

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[17] See Doukas and Travlos (1988).

and 0.26 significantly positive at the 0.05 level, respectively. These OLS results suggest an even more pronounced increase in bidders' gains when they invest in a foreign country for the first time compared to bidders' gains with prior operations in the target's country. The regression coefficients of q ratio for regressions (7) through (11) are 0.14, 0.25, 0.19, 0.16 and 0.18 significantly positive at the 0.05 level, respectively. Further evidence on the importance of the different results obtained for bidders with and without operations in the target's country is provided by analysis of variance. Use of the Brown and Forsythe (1974) test of differences in means, which is robust under inequality of variances, showed that there is a significant difference at the 0.05 level. The analysis of variance is equivalent to testing whether the constants and slopes in the regressions are the same across the two subsets of bidders with and without operations in the target's country. Evidence based on the latter test, produced similar results to the variance analysis, indicating that the difference holds at the 0.05 level. [18] This result reinforces the view that high q bidders do experience larger abnormal returns when they invest in a foreign country for the first time. While these results are consistent with Jensen's overinvestment hypothesis they are not incosistent with the findings of Doukas and Travlos (1988) which support that there is a link between multinationality and firm value.

2.3. Foreign investment decisions and the role of taxes

With the 1986 Tax Act, the U.S. corporate tax rate fell below that of foreign countries (i.e., Japan, Germany and other European countries) and the foreign tax credit (FTC) limitation became more binding in many more cases subsequent to the 1986 Tax Act than before it (Scholes and Wolfson (1990)). As a result, the U.S. will refund less than 100% of foreign taxes paid by U.S. multinational corporations after 1986. As a consequence, the 1986 Tax Act should have motivated U.S. firms to invest in low-tax-rate jurisdictions to free up the foreign tax credit limitations. In fact, Slemrod (1989) reports that U.S. investment in low-tax European countries (notably Belgium, Ireland, Luxembourg and Spain) increased 122% between 1984–1989, while investment increased only 45% in high-tax European countries. A general implication of the tax argument favoring U.S. foreign investment in low-tax-rate countries is that, if bidder firms gain from the acquisition of foreign firms, bidder returns are expected to be higher when the target is located in a low-tax country. [19] That is, an acquisition may be more

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[18] The heteroskedasticity test of White (1980) was also used to check the constant variance assumption. This is a chi-square test. The results, not reported here, show no evidence of heteroskedasticity or mispecification of the regressions for the 1975–1989 sample period.

[19] There still exist a number of countries that tax income at rates well below those in the U.S., notably Singapore, Malaysia, Puerto Rico, Ireland, Hong Kong and Taiwan among others. Over 63% of Digital Equipment Corporation's 1989 income was from foreign operations in countries with low tax rates (see Scholes and Wolfson, 1992). DEC's 1989 financial statements suggest that its effective tax rate was reduced 8% by operating in low-tax-rate jurisdiction.

beneficial if the target firm's operations are in a low-tax-rate country. To examine the impact of taxes and the 1986 tax reform on the returns of bidder firms, two zero-one dummy variables are introduced into the cross-sectional regression analysis. The zero-one *TAX* variable, takes on the value of one if the U.S. tax-rate exceeds that of the target's country tax rate. To measure the effect of the U.S. 1986 tax changes, the *TAX86* variable is set equal to one if the acquisition occurs after 1986.

The results of Table 5 illustrate that bidder gains are significantly higher when the target's operations are in a low-tax country compared to the U.S. corporate tax rate. These findings suggest that the tax advantages associated with foreign investments in low-tax-rate jurisdictions are recognized by investors. The coefficients of the *TAX* variable remain significantly positive despite the inclusion of the other control variables, confirming the linkage between taxes and foreign direct investment. This result is consistent with Scholes and Wolfson's (1992) argument that tax policy plays an important role in affecting the investment decisions of U.S. multinational firms.

The second tax variable, *TAX86*, is negatively linked to bidder gains in all three regressions. The negative sign on *TAX86* supports Scholes and Wolfson's (1992) tax view that the 1986 tax reform, which reduced U.S. corporate tax rates to 34%, had an adverse effect on U.S. firms' foreign tax credits. This result remains virtually unchanged after controlling for the effects of other factors. The magnitude and significance, however, of the *TAX86* variable is somewhat smaller than that of the *TAX* variable.

Overall, the regressions of Table 5 indicate that foreign acquisition decisions are most likely to be influenced by the differences in statutory tax rates across countries. The results revealed a positive and significant association between bidder gains and low-tax-rate environments in U.S. acquisitions of foreign firms. Furthermore, the evidence suggests that the 1986 U.S. tax reform exerted a negative and significant impact on bidder returns associated with foreign acquisitions of interest by U.S. companies.

3. Summary and concluding remarks

This paper studies the relation between shareholder gains and the *q* ratios of U.S. bidders involved in 463 foreign acquisitions over the period 1975–1989. If Tobin's *q* is used to separate firms into value maximizers (i.e., well-managed firms) and overinvestors (i.e., poorly-managed firms) the results indicate that bidder abnormal returns are substantially higher for value maximizing firms than overinvesting firms. The differential stock-price reaction to foreign investment announcements by value maximizing and overinvesting U.S. bidding firms is consistent with Jensen's view that a firm with substantial free cash flows will have a tendency to overinvest by accepting marginal investment projects with negative net present values. The results of the present study also show that financial

Table 5

OLS estimates of coefficients in cross-sectional regressions of the two-day ($-1, 0$) cumulative abnormal returns for U.S. bidding firms at the announcement of foreign acquisition bids on Tobin's Q [a], the degree of international exposure of the bidding firm (DOE) [b], the degree of economic development of the target firm's country (DED) [c], the exchange rate index (ERI) [d], the free cash flows (FCF) [e], the tax dummy variable (TAX) [f] and the 1986 Tax Reform dummy variable ($TAX86$) [g]: 1975–1989 (t-values in parentheses)

Intercept		Independent variables							$\bar{R}^2(\%)$	F
	Q	DOE	DED	ERI	FCF	TAX	$TAX86$		
1. Entire sample [h]; N = 463										
−0.064	0.140	0.241	0.650	−0.014	−0.612	0.021	−0.020	4.12	4.77
(−0.78)	(1.87) *	(1.90) *	(2.01) * *	(−1.97) *	(−2.09) * *	(1.92) *	(−1.78) *		(2.15)
2. Bidders with operation in the target's country; N = 285										
−0.011	0.020		0.500	−0.015	−0.560	0.018	−0.014	4.02	4.01
(−0.46)	(1.78) *		(1.81) *	(−1.92) *	(−2.11) *	(1.85) *	(−1.75 *)		(2.85)
3. Bidders without operations in the target's country; N = 140										
−0.032	0.029		0.674	−0.014	−0.556	0.020	−0.011	5.01	5.54
(−0.54)	(2.05) *		(1.86) *	(−1.90) *	(−2.07) *	(1.89) *	(−1.75) *		(2.73)

[a] Q is a dummy variable for the ratio of the market value of the firm's securities to its replacement cost (i.e., $Q = 0$ if the firm's q ratio is less than one, 1 if the firm's q ratio is greater than one).

[b] DOE is a dummy variable for the degree of international exposure of the bidding firm (i.e., $DOE = 0$ if the bidder has prior operations in the target firm's country, 1 otherwise).

[c] DED is a dummy variable for the degree of the economic development of the target firm's country (i.e., $DED = 0$ if the target is located in a developed country, 1 if it is located in a less developed country).

[d] ERI is an index of the real dollar exchange rate (base year end of $1973 = 1$).

[e] FCF is a dummy variable equal to one for firms with FC in excess of the sample median and zero otherwise.

[f] TAX is a dummy variable set equal to one if the U.S. tax rate exceeds that of the target's country tax rate.

[g] $TAX86$ is a dummy variable set to one if the acquisition takes place after the 1986 U.S. tax reform.

[h] The entire sample includes 38 bidding firms without any prior international operations.

* Significant at 0.10 level; * * significant at 0.05 level.

markets reward more the initial than subsequent foreign investments of well-managed U.S. multinational firms. For high q (i.e., value maximizing) firms, this result also supports the view that there is a link between multinationality and firm value. Furthermore, this finding implies that foreign acquisitions create wealth for high q bidders by leading to better international use of target resources. The effect of free cash flow on bidder return shows that the bidder's abnormal return is inversely related to the cash flow of low q firms and unrelated to the cash flow of high q firms. This implies that foreign acquisition announcements by firms with high cash flow and a low q adversely affect their shareholders' wealth because the acquisition reveals negative information about bidder's management and investment opportunities.

Further analysis explored the association between bidder gains and the bidder's exposure to the country of the target firm, the target's country degree of economic development, the industry characteristics of the firms involved in the acquisition, the dollar exchange rate and the method of payment. The evidence supports that high q bidders gain significantly higher abnormal returns when the target firm is located in a country that is less developed than the U.S. economy and the bidder does not have any operations in the target's country. This result is consistent with the view that foreign direct investment is most likely to be driven by the degree of market imperfections across countries. The results also show that the dollar exchange rate is an important determinant of the benefits associated with foreign direct investment of U.S. firms.

Testing for the impact of taxes and the 1986 tax reform on the returns of bidder firms, the results confirmed Scholes and Wolfson's (1990, 1992) conjecture that tax policy plays an important role in U.S. firms' foreign investment decisions. The results indicate that bidder gains are significantly higher when targets' operations are in low-tax-rate jurisdictions. There is also evidence that the 1986 Tax Act had an adverse effect on bidder returns. This is attributed to the additional limitations the 1986 Tax Act imposed on U.S. firms' foreign tax credits with foreign operations.

Acknowledgements

Appendix A

The following formula is used to estimate the LTDebt variable.

$$LTDebt_t = SBond_t \sum_{j=0}^{n-2} f_{t,t-j} \left\{ \left(R_{t-j}^A / R_t^A \right) \left[I - \left(1 + P_t^A \right)^{-(n-j)} \right] \right. $$
$$\left. + \left(1 + R_t^{A-(n-j)} \right) \right\}$$

where *SBond* is the year-end book value of the firm's long-term debt in year t; $f_{t,t-1} = N_{t-i} / \sum_{k=0}^{n-2} N_{t-k}$; $i = 0, \ldots, n-2$; N_t is the sum of all new debt issued in year t, R_t^A is the yield to maturity of a firm's debt at time t under the simplifying assumption that all debt issued in year t is priced to yield the average interest rate in A rated debt for that year.

The replacement value of the firm's assets, *RC*, is defined as

$$RC_t = TA_t + RNP_t - HNP_t + RINV_t - HINV_t$$

where TA_t is the book value of total assets in year t; $RNP_t = RNP_{t-1} \left[\dfrac{1 + \Phi_T}{1 + \delta_T} \right] + I_t; t > 0$ is the estimated value of net plant replacement cost in year t; $RNP_{t=0} = HNP_{t=0}$; Φ_t is the growth of capital goods prices in year t estimated by the Gross National Product deflator for nonresidential fixed investment; δ_t is the real depreciation rate in year t estimated by DEP_t / HNP_{t-1}, where DEP_t represents book depreciation in year t; I_t is the investment in new plant in year t; HNP_t is the historical book value of net plant in year t; $RINV_t$ is the firm-reported replacement value of inventories in year t; and $HINV_t$ is the historical book value of inventories in year t. Finally, *RNP* is substituted into the replacement cost equation to yield Perfect and Wiles' (1994) *RC* estimate, which is a modification of the Lindenberg and Ross' (1981) *RC* estimate.

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