

Internalization

An event study test

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The internalization theory of multinational firms proposes that direct international investment occurs when a firm has information-related intangible assets with public good properties. We find that firms with characteristics suggesting the presence of information-based assets experience a significantly positive stock price reaction upon announcing a foreign acquisition. On the other hand, firms apparently lacking such assets experience at best zero abnormal returns upon announcing overseas acquisitions.

1. Introduction

Recent developments in international economics suggest that multinational expansion is due to the presence of intangible assets. The *internalization theory*¹ posits that direct foreign investment should occur when a firm can increase its value by internalizing markets for certain of its intangible assets. Such assets are commonly thought to include:²

- (1) technological know-how;
- (2) marketing ability and related consumer goodwill; and
- (3) effective and dedicated management.

The internalization theory holds that such intangible assets have some of the characteristics of public goods in that their value increases in direct

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¹This view is developed in Coase (1937), Hymer (1960: 1976), Caves (1971), Dunning (1973), Williamson (1975), Buckley and Casson (1976), Magee (1977) and Rugman (1981).

²See, for example, Helpman (1984).

proportion to the scale of the firm's markets. Since they are also based largely on proprietary information, they cannot be exchanged at arm's length for a variety of reasons arising from the economics of information as well as from the economics of public goods.³

To realize the potential additional value of employing these intangible assets abroad, a firm must *internalize* the market for them. This can be accomplished by engaging in international direct investment. A value-maximizing firm does this if the expected gains from applying its intangibles abroad exceed the expected cost of running a foreign subsidiary, which is often substantial.⁴ The internalization theory thus implies that when firms possessing significant intangible assets expand abroad, shareholders' wealth increases owing to the increased scale over which such intangible assets are applied.

Recent work has connected the internalization theory to trade theory, e.g. Helpman (1984), Markusen (1984), Ethier (1986), and Horstmann and Markusen (1987). These papers develop trade models based on the premise that multinational firms have a factor of production which behaves like a public good. Given the popularity of the internalization theory and its recent incorporation into trade theory, it is important to subject the idea to empirical investigation.

There are several other plausible theories about why international expansion occurs. It has been argued that there are barriers to direct international portfolio diversification. Multinational firms offer shareholders international diversification opportunities via their direct investments abroad.⁵ There is evidence that multinational firms exploit lower tax rates in some foreign countries.⁶ Others⁷ point out that more direct access to inexpensive labor or raw materials may be a motivation for international expansion.

All these theories suggest that a firm's value increases when foreign direct investment takes place. This paper therefore examines acquiring firms' stock price reaction to news of foreign acquisitions. We focus on the relation between the stock price reaction and indicators of the presence of acquirer intangible assets relating to technology, marketing, and the convergence of

³See Caves (1986, ch. 1), for a more detailed explanation.

⁴Running a foreign subsidiary is usually more costly than running a domestic subsidiary because of distance and differences in cultural, political and legal environments. The higher cost, for example, can manifest itself in the form of higher managerial control costs; see Ethier and Horn (1990). Because of these higher costs, the internalization theory is more relevant in an international setting. In a domestic setting the additional value of intangible assets with public good properties can be realized more directly and immediately in the form of domestic growth. Firms will expand internationally only when the additional value to their intangible assets exceeds the cost barrier of establishing and running a foreign subsidiary.

⁵See, for example, Agmon and Lessard (1977), and Errunza and Senbet (1981, 1984).

⁶See Hines and Rice (1990), Grubert and Mutti (1991) and Harris, Morck, Slemrod and Yeung (1991).

⁷See Hood and Young (1979, ch. 2).

managers' and shareholders' interests. While our analysis is designed as a test of the importance of the internalization theory in international expansions, it also casts indirect light on the above alternative motives for international expansion.

An advantage of our event study test is that it focuses explicitly on how the stock price reaction to foreign direct investment is related to intangible assets present at the time when the foreign investment takes place. The interpretation of causality running from the possession of intangible assets to the value of international expansion is thus unambiguous.

Briefly, our results are consistent with the internalization theory. Research and development spending (indicating technology-related intangibles) is positively correlated with stock price reaction when a foreign acquisition is announced. Advertising spending (indicating marketing-related intangibles) increases the probability of a positive stock price reaction among large firms. Management ownership (indicating convergence of managers' and shareholders' interest) is also positively correlated with stock price reaction. However, large block holdings by insiders (possibly indicating entrenchment of management) are negatively related to abnormal returns. In general, when firms with intangible assets expand abroad, their stock prices rise.

In contrast, when firms which lack intangible assets expand abroad, their stock prices *at best* hold steady and may even fall – although this is not statistically significant. We should not observe this were international expansions bringing shareholders the benefits of increased diversification, tax avoidance at the corporate level, lower costs, etc.

Relevant empirical literature is reviewed in the next section. The data are described in section 3 while the results are reported in section 4. We discuss the implications of our results in section 5.

2. The empirical literature

There is a significant empirical literature on internalization. Vaupel (1971), Vernon (1971) and Dunning (1973) find in simple descriptive studies that multinational firms are larger, earn higher accounting profits, and spend more on R&D and advertising. Using regression analysis, Horst (1972a, b), Caves (1974), Buckley and Casson (1976, ch. 4), Wolf (1977), Pugel (1978, ch. 4) and Dunning (1980), all find a positive relationship between multinational structure and proxies for intangible assets like R&D expenditure, advertising and the proportion of scientists and engineers in total employment.

The earlier studies do not directly test for a relationship between the value of a multinational structure and the possession of intangible assets. They also rely on industry averages rather than individual firm data. The internalization theory, however, is a firm-level theory.

More recently, Grubaugh (1987) uses linear probability and logit models to show that advertising intensity, R&D expenditures and product diversity increase a firm's probability of being multinational. Also, Morck and Yeung (1991) show that the market value of a firm is positively related to its multinational structure and that the relationship is explained by the presence of intangible assets proxied for by R&D and advertising spending. While this recent work overcomes some of the problems of earlier studies, it does not allow any interference of causality. The internalization theory explicitly suggests that causality runs from the possession of intangible assets to the value of direct foreign investment.

An event study approach is appropriate for testing the causal linkage directly. Using this technique, we examine the relationship between stock price reactions to the news of foreign acquisitions and the possession of intangible assets. The internalization theory predicts a positive relationship.

We believe that this is the first paper to employ an event study methodology to directly test the internalization theory. However, a number of other papers have used event study techniques to examine international acquisitions in other contexts, and are thus of interest here.

In studying the correlation between returns to U.S. multinational firms and the U.S. stock market, Fatemi (1984)⁸ finds small positive cumulative abnormal return of multinational firms around the data of international expansion.

Doukas and Travlos (1988) use an event study methodology to examine the differential impact on stock prices of three types of foreign acquisitions by U.S. based firms. They show that multinational firms not initially operating in the target firm's country experience significant positive share price movements upon the announcement of the acquisition. The abnormal return is insignificantly negative if the acquiring firm is already operating in the target firm's country. The abnormal return is insignificantly positive if the acquiring firm is expanding internationally for the first time.

Foreign acquisitions, like other complex takeover events, have effects which are likely to depend on the detailed financial characteristics of both the target and bidder [see Lang et al. (1989), Morck et al. (1989)]. Unfortunately, comparable financial and ownership structure information is not readily available for foreign targets. Nonetheless, some insight into the motives behind multinational expansion can be developed by relating the characteristics of U.S. firms making international acquisitions with the market's reaction to the announcements of the bids.

The emphasis in this study, the presence of useful intangibles, is not

⁸The major focus of Fatemi (1984) is to investigate further the Agmon and Lessard (1977) finding that multinationals' stock returns are less correlated to domestic market movements than are returns from domestic firms' stocks. While he confirms their result, he shows, however, that risk-adjusted returns on multinational and uninalational firms behave similarly.

entirely different from that in some studies of domestic acquisitions. Singh and Montgomery (1987) and Morck et al. (1989) report that bidders' abnormal returns are higher for 'related' acquisitions than for 'unrelated' acquisitions. 'Relatedness' in the current context suggests that the bidder possesses intangible assets useful in managing the target firm. Of course, other interpretations are possible. Unfortunately, we are unable to test for such an effect because of a lack of data about our foreign targets' lines of business.

You et al. (1986) report that percentage ownership by managers and directors is a positive and significant determinant of the bidder's return.⁹ Morck et al. (1989) show that the bidder's return is higher the better the bidder's management track record as measured by past equity or income growth. Lang et al. (1989) find that the bidder's return is significantly positive when a bidder with a high Tobin's q acquires a target with a low Tobin's q . They hypothesize that management performance is an important determinant of a firm's q . All of these papers can be interpreted as finding a relation between intangible assets and abnormal return upon announcing an expansion of the firm's scale of operation.

3. The data

Our sample consists of 322 foreign acquisitions by U.S. corporations between 1978 and 1988,¹⁰ collected from the Dow Jones News Retrieval Service. The event date is defined as the date when the acquisition news first appears either in the Dow Jones News Retrieval Service or in the *Wall Street Journal* Index. For each takeover, the stock return around the date of the first news release is obtained from the CRSP daily cum dividend returns series. Abnormal returns are constructed by subtracting the CRSP value-weighted market index series from each firm's daily returns. In the analysis below, we employ a one day event window. Our results do not change qualitatively if the window is widened to three days; however, significance levels fall. Our results become insignificant if a five day window centered on the event date is used.

We relate stock price movements upon the announcement of a foreign expansion to variables which indicate the presence or absence of intangible assets. Multinational expansion in the presence of substantial intangible assets should be viewed by investors as increasing firm value.

Helpman (1984) and others point to three main sorts of intangible assets that might be important in this context: proprietary technology, marketing

⁹You et al. (1986) also report that 'skill' is a positive and significant variable determining a bidder's return. Their skill variable is a dummy index indicating a likely similarity between the business systems required to run the bidder and target companies.

¹⁰Our sample also includes three foreign-controlled acquirers which trade on U.S. exchanges and satisfy SEC disclosure rules.

expertise, and good management. All three are abstract concepts and, by their very nature, difficult to quantify.¹¹

As a proxy for the value of a firm's intangible stock of technological know-how, we employ research and development spending ($R\&D$) during the year prior to the expansion as reported in Standard and Poor's Compustat. Where research and development spending is listed by Compustat as *nil* or *not reported*, we set it to zero if all other standard financial data are available. Note that firms which do not report $R\&D$ spending in one year almost always have no $R\&D$ spending in nearby years either, so using the flow to approximate the stock is to some extent justified. To reduce heteroskedasticity problems, we scale $R\&D$ spending by total corporate assets (A) – also from Compustat. We expect $R\&D$ spending per dollar of assets ($R\&D/A$) to be positively correlated with stock price reactions to overseas expansions.

Similarly, we use advertising spending (ADV) reported in Compustat for the year before the international expansion to proxy for intangible assets related to marketing ability and consumer goodwill. Again, we set this variable to zero if it is listed as *not reported* or *nil* and the firm lists complete financial data otherwise. As before, we scale by total assets (A) to control potential heteroskedasticity. Our hypothesis is that advertising spending per dollar of assets (ADV/A) should be positively correlated with stock price reactions to overseas expansions.

Measuring good management as a distinct intangible asset is more difficult. An analogous procedure to that used above for $R\&D$ or advertising would be to assume that managerial intangible assets are related to the firm's annual spending on managers – i.e. their total overall compensation. While a link between managerial compensation and firm performance has been demonstrated [Murphy (1985)], it has also been shown to be quite tenuous [Jensen and Murphy (1990)]. Indeed, much concern has been expressed in the finance literature about the weakness of this link.

We consider measures of the extent to which managers' interests are likely to converge with those of shareholders as proxies for 'good' management. Strictly speaking, convergence of a manager's and an investor's interests leads to responsible management, not necessarily good management.

Jensen and Meckling (1976) argue that convergence of managers' interests with those of shareholders should increase with equity ownership by managers. Therefore to proxy for management quality we include the

¹¹An obvious measure of general intangible asset is Tobin's q . In this study, however, we consider the effects of specific types of intangibles. Using book value q 's risks introducing biases of uncertain sign. Estimating market value q 's requires many years of prior data for each firm and thus substantially reduces the sample. This is a serious problem since rapidly growing firms in the initial phases of foreign expansion are of special interest in this study. These firms are often recent additions to Compustat and therefore disproportionately lack past data. We return to this issue in footnote 15 below.

fraction of the firm's outstanding equity held by insiders (*INS*). Insiders are defined here as officers of the corporation. This variable is obtained from the SPECTRUM 6 database.

Others, such as Demsetz (1983) and Stultz (1988), argue that if insiders' equity stake (*INS*) is very large, managers might be effectively insulated from hostile takeovers, proxy challenges, or other aspects of the market for corporate control. Such entrenched managers might feel free to ignore the interests of dispersed small shareholders with impunity. Stultz (1988) juxtaposes these arguments against those of Jensen and Meckling (1976) and concludes that a non-linear relation should exist with firm value first rising with *INS*, and then falling. Morck et al (1988) find empirical evidence of such a non-linear relation. They find value initially increasing with *INS*, abruptly falling as entrenchment sets in, and rising again for extremely high levels of insider holdings. Thus, in conjunction with *INS*, we also include an entrenched management indicator (*CONTROL*) which is set to one wherever total insider ownership exceeds 20 percent. This threshold for entrenchment has indicated, given the results in Morck et al. (1988), that a negative relation between insider ownership and firm value sets in at relatively low levels. They argue that effective domination of the board is possible with such a stake under ordinary circumstances.

We anticipate that insider fractional holdings (*INS*) should be positively related to the stock price reaction to overseas expansion and that entrenchment (*CONTROL*) should be negatively correlated with it.

To summarize: if the internalization theory is valid, the expected relation between the abnormal stock return (*AR*) upon the announcement of a foreign acquisition and the various proxies for intangibles is as follows:

$$AR = F(R\overset{+}{\&D}/A, ADV\overset{+}{/}A, INS\overset{+}{}, CONTROL\overset{-}{}) \quad (1)$$

In the actual estimation of the above relation, several important effects must be controlled for.

It is established in the corporate finance literature that new share issues in general are accompanied by share price declines. This is thought by some [e.g. Myers and Majluf (1984)] to be because investors expect managers to issue new shares when managers know the share value to be too high. A new share issue thus conveys information in a situation where the market for used capital, the stock market, resembles the market for used cars in that a classic lemons problem exists. Travlos (1987) documents that financing by stock issuance reduces the bidder's gain in domestic acquisitions. In light of this literature, in the results below we control for equity financing separately.

A dummy for whether the acquisition was financed through a new share

issue (*STOCK*) is constructed from the first news release that appears either in the Dow Jones News Retrieval Service or in the *Wall Street Journal* Index. If there is indication that the acquisition is fully or partly financed by stock issuance in the announcement, the dummy is set to one; otherwise it is zero. This dummy variable is expected to have a negative correlation with *AR*.

Another set of effects we attempt to control for relates to firm size. First, there is an estimation issue. A large firm acquiring a small one should experience a much smaller stock price change than a small bidder acquiring a large target. OLS regression may thus overemphasize the latter type of acquisition. Ideally, we should control for the bidder's size relative to the target's. Unfortunately, comparable accounting information on our foreign targets is not available.¹² However, we do attempt to control for bidder size by introducing the natural log of total assets ($\log(A)$) from Compustat as an explanatory variable in our estimation of eq. (1). $\log(A)$ is expected to have a negative correlation with *AR*.

Second, there may be purely economic issues related to size. Larger firms tend to have more diffuse ownership and lower management stakes. They are less likely to have dominant owners. Larger firms usually have a larger pool of managers but are more difficult to manage and to monitor. Larger firms may have more resources to spend on R&D, or advertising. On the other hand, they may be older and in more mature industries less characterized by R&D spending. Moreover, size itself might reflect certain intangibles. Small firms that expand abroad might tend to be dynamic, rapidly growing firms with substantial intangibles to capitalize by accessing foreign markets. Thus, firm size may be correlated with the intangibles which are the focus of our study. Given this possibility, we present results both with and without the size variable.

Finally, we present results both with and without dummies for two- and three-digit Standard Industrial Classification (SIC) codes from Compustat. This allows us to determine whether it is more important to have an absolute advantage in intangibles, or merely an advantage over other firms in the same industry in order to engage in value-increasing international expansion.

4. Empirical results

Table 1 shows summary statistics for all of the above variables in our sample. Univariate statistics are displayed in panel A; simple correlation coefficients are displayed in panel B.

The mean abnormal return for our 322 U.S. based firms making foreign

¹²Still, according to the internalization theory, it is the scale of the foreign market that is important, not necessarily the size of the foreign target.

Table 1
Panel A: Summary statistics.

	Mean	Standard deviation	Maximum	Minimum
Abnormal return (<i>RETURN</i>)	0.0029	0.0282	0.1791	-0.1348
R&D spending/\$ of assets (<i>R&D/A</i>)	0.0244	0.0334	0.2029	0.0000
Advertising spending/\$ of assets (<i>ADV/A</i>)	0.0207	0.0405	0.2563	0.0000
Fraction holdings by insiders (<i>INS</i>)	0.0637	0.1202	0.6736	0.0000
Entrenchment dummy (<i>CONTROL</i>)	0.1118	0.3156	1.000	0.0000
Stock financing dummy (<i>STOCK</i>)	0.0683	0.2527	1.000	0.0000
Size (log (<i>A</i>))	6.516	2.276	11.44	1.037

Sample: 322 observations.

Panel B: Simple correlation coefficients.

	<i>R&D/A</i>	<i>ADV/A</i>	<i>INS</i>	<i>CONTROL</i>	<i>STOCK</i>	log (<i>A</i>)
Abnormal return	0.1212	-0.0011	0.1213	0.0424	0.0060	-0.2263
(<i>RETURN</i>)	0.0297	0.9844	0.0295	0.4481	0.9144	0.0001
R&D/\$ of		0.0142	0.0275	-0.0301	-0.0547	-0.1930
assets (<i>R&D/A</i>)		0.7996	0.6236	0.5905	0.3282	0.0005
Advert/\$ of			-0.0721	-0.0610	-0.1072	0.1062
assets (<i>ADV/A</i>)			0.1970	0.2750	0.0546	0.0570
Insider stake				0.8790	0.0746	-0.4096
(<i>INS</i>)				0.0001	0.1817	0.0001
Entrenchment					0.0992	-0.2784
(<i>CONTROL</i>)					0.0754	0.0001
Stock financing						-0.1076
dummy (<i>STOCK</i>)						0.0538

Sample: 322 observations.

Note: Numbers below sample correlation coefficients are estimated probability levels for the hypothesis that the true correlation is zero.

acquisitions between 1979 and 1988 is 0.29 percent. This value is significantly above zero with a *t*-ratio of 1.86. This result is consistent with Fatemi (1984) and is noticeably different from well-known results in corporate finance for domestic acquisitions. For example, Bradley et al. (1988) report bidder abnormal returns between 1981 and 1984 averaging -2.93 percent. Also, Jarrell et al. (1988) report a -1.1 percent average in the 1980s. The market appears to view international acquisitions as good news on average - and apparently as better news than domestic acquisitions.

The average firm in our sample spends 2.44 percent of the value of its assets on R&D and 2.07 percent of the value of its assets on advertising annually. Note in panel B that high R&D spending is significantly correlated with a positive reaction to news of a foreign acquisition. Advertising spending appears to be uncorrelated with the market's reaction to overseas expansion. This could be taken as evidence that the sort of intangible assets which render overseas expansion profitable are more directly linked to R&D

Table 2

Results of regressions explaining abnormal return upon the announcement of a foreign acquisition with measures of the existence of various intangible assets.

Independent variable	(2.1)	(2.2)	(2.3)	(2.4)
Intercept	-0.0003 (0.155)	0.0029 (1.56)	-0.0002 (0.100)	-0.0020 (0.872)
Stock financing dummy (<i>STOCK</i>)	0.0014 (0.228)	0.0007 (0.106)	0.0007 (0.118)	0.0014 (0.224)
R&D spending/\$ of assets (<i>R&D/A</i>)	0.1032 (2.19)			0.0884 (1.88)
Advertising spending/\$ of assets (<i>ADV/A</i>)		-0.0003 (0.008)		0.0055 (0.142)
Fractional stake of insiders (<i>INS</i>)			0.0868 (3.20)	0.0812 (2.98)
Entrenchment dummy (<i>CONTROL</i>)			-0.0253 (2.44)	-0.0232 (2.23)
R^2	0.0148	0.0000	0.0329	0.0437

Sample: 322 observations.

Note: *t*-ratios are in parentheses.

than to marketing. This is *a priori* reasonable since marketing expertise in the United States is less likely to be immediately transferable to foreign countries than are technological advantages. In previous work advertising expenditure is a weaker variable than R&D spending in explaining why a firm is multinational [Grubaugh (1987)], and the value of a multinational structure [Morck and Yeung (1991)].

The effect might, however, also result from a failure to control for bidder size. Results in table 1, panel B, confirm that size is negatively correlated with acquisition gains, and that size is highly correlated with all proxies for intangible assets. This suggests that a possible collinearity problem must be added to the other issues connected with size mentioned above.

The mean insider ownership for our sample is 6.73 percent and ranges from 0 percent to 67.4 percent. The median, at 0.988 percent, is much lower than the mean, indicating a skewed distribution. Insider ownership shows a positive correlation with the market's reaction to a foreign acquisition.

We classify 11.2 percent of the firms in our sample as possibly having entrenched management. The correlation coefficient relating entrenchment to the abnormal return is positive, but quite insignificant. Note, however, that firms with very low management stakes make value-decreasing acquisitions as well, and about three-quarters of the firms in our sample have insider ownership of 5 percent or less. Thus, a simple bivariate relation between the entrenchment dummy and the return to international expansion is uninformative. A multivariate approach is required here.

Table 2 displays OLS regressions explaining the abnormal return upon announcing an international expansion. High R&D spending is significantly

Table 3

Results of regressions explaining abnormal return upon the announcement of a foreign acquisition with measures of the existence of various intangible assets controlling for industry effects and firm size.

Independent variable	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)
Intercept	-0.0020 (0.872)			0.0142 (2.33)		
Stock financing dummy (<i>STOCK</i>)	0.0014 (0.224)	-0.0049 (0.760)	-0.0102 (1.45)	-0.0004 (0.069)	-0.0081 (1.27)	-0.0108 (1.54)
Firm size ($\log(A)$)				-0.0022 (2.87)	-0.0034 (3.53)	-0.0022 (1.81)
R&D/\$ of assets ($R\&D/A$)	0.0884 (1.88)	0.0807 (1.45)	0.0830 (1.18)	0.0627 (1.33)	0.0739 (1.35)	0.0829 (1.19)
Advertising/\$ of assets (ADV/A)	0.0055 (0.142)	0.0009 (0.020)	-0.0108 (0.180)	0.0142 (0.370)	0.0101 (0.220)	0.0023 (0.040)
Fractional stake of insiders (<i>INS</i>)	0.0812 (2.98)	0.0754 (2.70)	0.0818 (2.64)	0.0526 (1.83)	0.0421 (1.46)	0.0613 (1.87)
Entrenchment dummy (<i>CONTROL</i>)	-0.0232 (2.23)	-0.0207 (1.92)	-0.0178 (1.48)	-0.0179 (1.71)	-0.0150 (1.40)	-0.0156 (1.30)
SIC industry code level	none	2	3	none	2	3
R^2	0.0437	0.2461	0.4731	0.0680	0.2789	0.4813
Sample	322	322	322	322	322	322

Note: *t*-ratios are in parentheses.

related to a positive abnormal return; however, advertising spending appears to have no explanatory power. The abnormal return is positively related to insiders' stake, as in You et al. (1986), and negatively related to entrenchment.¹³ The point estimate of the insider stake variable is about 0.08, indicating that an acquirer whose insiders own 10 percent has, *ceteris paribus*, an abnormal return 0.8 percentage points higher than an acquirer whose insiders own no stock. The entrenchment dummy's point estimate of about -0.02 indicates that a firm whose insiders own over 20 percent has an abnormal return 2 percentage points below a firm whose insiders own just below 20 percent and 2 minus 20 percent of 8 or 0.4 points below a firm whose insiders own no stock. These results are generally consistent with the internalization theory.

Note that stock financing is not significantly related to abnormal return. This contrasts with a negative effect found for domestic acquisitions.¹⁴ Our results do not change greatly if the stock financing dummy is omitted.

In the first column of table 3 we repeat regression (2.4) for reference.

¹³The definition of entrenchment is that total insider holdings must exceed 20 percent. The significant negative coefficient on the entrenchment dummy is remarkably stable across the wide variety of different specifications below. Changing the definition of 'entrenchment', however, does cause the result to change. If the cutoff is lowered, the coefficient falls and becomes insignificant. Our result is not changed qualitatively if the cutoff is raised.

¹⁴See Travlos (1987).

Regressions (3.2) and (3.3) contain the same variables, but also control for industry classification at the two- and three-digit levels. Point estimates for coefficients of the explanatory variables *R&D/A*, *INS* and *CONTROL* do not change much, although their significance levels are reduced by the presence of industry dummies.¹⁵

In (3.4), (3.5) and (3.6) we add the log of the acquirer firm's size, $\log(A)$, as an explanatory variable. Size is included to control for the estimation and economic issues discussed near the end of section 3.

Size is significantly negative in all specifications. The point estimates and significance of the insider stake and entrenchment variables are not greatly changed. This indicates that they are not proxying for size. R&D does less well when size is controlled for but is still marginally significant in a one-tailed *t*-test. This hints that its impact might be related to firm size.¹⁶

In table 4 we run probit regressions on a dummy variable which is one if the abnormal return is positive and zero if it is negative. Thus we only try to explain the sign of the abnormal return, not its value. This largely removes the problem that a large firm's stock price moves less than a small firm's upon its making an identical acquisition. Of course noise may nonetheless obscure the correct sign of the abnormal return for large firms more than for small firms. Thus, the difficulty with this approach is that we may be throwing away information and adding noise.

Size is insignificant in probit (4.2). This suggests that the size variable is important in the OLS regressions because of the estimation issues discussed in section 3. Size does not appear to be proxying for additional tangible assets.

Research and development spending has a positive sign in (4.1) and (4.2), but is at best only marginally significant in a one-tailed *t*-test. Advertising spending performs much better than in the OLS regressions, producing *t*-ratios in the 1.6 range. Since the probits are not over-emphasizing smaller firms, we can hypothesize that marketing-related intangibles are more important for larger bidder firms.

¹⁵Regressions similar to (3.1), (3.2), and (3.3), but including the acquirer's book value *q*-ratio, were also run. (For a large proportion of our firms, especially those with high R&D spending, data are not available for enough prior years to allow us to construct estimates of market value *q*'s.) The *q*-ratio, the firm's market value divided by its replacement cost, can be interpreted as a measure of investor's perceptions about the general level of intangible assets. In these regressions the *q*-ratio is significantly positively related to the acquirer's abnormal return. This is consistent with Lang et al.'s (1989) results for domestic takeovers and with the internalization theory of multinationals.

¹⁶We repeat regression (3.1) dividing the sample at median firm size. In the small firm sample the regression coefficient for R&D is 0.10 (*t*=1.4) and that for advertising is -0.05 (*t*=0.51). Analogous numbers for the larger firm subsample are 0.04 (*t*=0.70) for R&D and 0.04 (*t*=1.4) for advertising. Thus R&D appears to matter more for small bidders, while advertising is more important to larger bidders. Still, this procedure does not resolve the dual problem inherent in the size variable: it is negatively related to bidder's gain and is also correlated with proxies for intangible assets.

Table 4

Results of probit estimations explaining sign of abnormal return upon the announcement of a foreign acquisition with measures of the existence of various intangible assets.

Independent variable	(4.1)	(4.2)	(4.3)	(4.4)
Intercept	-0.2064 (1.94)	-0.1402 (0.497)	-0.2590 (1.61)	-1.1331 (0.887)
Firm size ($\log(A)$)		-0.0090 (0.253)		
Stock financing dummy (<i>STOCK</i>)	3.199 (1.13)	3.119 (1.09)	0.2852 (0.820)	0.3702 (0.735)
R&D spending/\$ of assets (<i>R&D/A</i>)	2.979 (1.34)	2.877 (1.28)	5.124 (1.83)	-0.8955 (0.225)
Advertising/\$ of assets (<i>ADV/A</i>)	2.913 (1.64)	2.945 (1.65)	-1.436 (0.409)	4.458 (2.04)
Fractional stake of insiders (<i>INS</i>)	3.058 (2.39)	2.938 (2.15)	3.123 (2.17)	4.168 (1.09)
Entrenchment dummy (<i>CONTROL</i>)	-1.043 (2.15)	-1.021 (2.07)	-1.031 (1.93)	-1.394 (1.06)
Sample	all firms	all firms	small firms	large firms
Sample size	322	322	161	161

Note: *t*-ratios are in parentheses.

This is confirmed in probits (4.3) and (4.4) which include smaller and larger-than-median sized firms, respectively. The sign of the abnormal return for small firms is significantly related to R&D spending, whereas advertising has little impact. In contrast, the sign of the abnormal return for large bidders is significantly related to advertising spending and unrelated to R&D. This is consistent with the view outlined above that small and large firms may be qualitatively different.

Insider stake and the entrenchment dummy continue to be significant as in the OLS model. They appear to be more important for smaller bidders. This is reasonable since it is more difficult for insiders to own a substantial fraction of a larger firm.

Overall, the results of the regressions described above are consistent with the internalization theory. That is, a firm's stock price rises upon its announcement of a bid for a foreign target if the bidder appears to possess intangible assets. This effect is more pronounced among smaller bidders having technology-related intangibles and larger bidders possessing marketing-related intangibles.

5. Conclusions and implications

In conclusion, the behavior of abnormal stock returns around the

announcement of international acquisitions is broadly consistent with the internalization theory of multinational firms. High R&D spending, an indicator of technology-related intangible assets, is correlated with high abnormal returns – especially among smaller acquirers. Advertising spending, an indicator of marketing-based intangibles, is significantly related to positive abnormal returns among larger acquirers. We speculate that this might reflect a corporate life cycle effect. Smaller firms, presumably younger and more dynamic, are likely to have technological intangibles that could be applied on a larger scale. In contrast, the most valuable intangibles of larger, more mature firms may relate to things like marketing advantages.

Abnormal returns increase with management ownership. However, abnormal returns are reduced where insiders are potentially entrenched due to owning a large block of shares. The net result is that foreign acquisitions are value enhancing when conducted by firms whose managers have significant, but not dominant, equity stakes. Managers in these firms are more likely to give high priority to increasing firm value. This is consistent with the internalization theory of foreign expansion because convergences of interests between managers and shareholders is a valuable intangible asset. Many authors¹⁷ in the finance area view a carefully constructed incentive structure for managers as critical for efficient operation of a publicly held corporation.

Note that in the regressions without the firm size variable the intercept is negative but insignificant. Where the firm size variable is included, the intercept is positive, but the coefficient on size is sufficiently negative that again an average sized firm with no intangibles and negligible management ownership is expected to have a small negative abnormal return.

Hence, in the absence of intangible assets, international expansion is *at best* a wash-out and may even be viewed by investors as a liability.¹⁸ This suggests that gains from better diversification possibilities, tax avoidance at the corporate level, and lower costs of inputs abroad do not in general compensate for the high cost of operating a foreign subsidiary in the absence of internalized intangible assets.¹⁹ Foreign acquisitions appear to increase firm value *only* for firms possessing intangible assets.

¹⁷See, for example, Jensen (1988).

¹⁸One possible explanation for a negative stock price impact of foreign acquisitions in the absence of intangibles is the 'managerialism' theory of takeovers. For example, Caves (1989, p. 167) argues that '[b]esides Roll's (1986) "hubris" hypothesis, there is the more testable proposition that low-return mergers are a natural outcome of managerial utility-maximization in the presence of high monitoring costs and imperfect principal-agent relationships'. Lang et al. (1989) and Morck et al. (1989) present evidence consistent with the view that domestic acquisition activity is driven in some part by managers' self-interest.

¹⁹Of course, these alternative theories cannot be entirely dismissed. For example, if income-shifting to avoid taxes is easier for firms with intangible assets, this could lead to a higher value of foreign expansion by such firms. [Evidence is presented in Harris, Morck, Slemrod and Yeung (1991).] Furthermore, issues like low-cost inputs may be critical in individual cases, but not in the aggregate. Further research in these areas is warranted.

References

- Agmon, Tamir and Donald Lessard, 1977, Investor recognition of corporate international diversification, *Journal of Finance* 32, Dec., 1049–1055.
- Berle, Adolf A. and G. Means, 1933, *The modern corporation and private property* (Macmillan, New York).
- Bradley, Michael, A. Desai and H. Kim, 1988, Synergistic gains from corporate acquisitions and their division between the stockholders of target and acquiring firms, *Journal of Financial Economics* 21, 3–40.
- Buckley, Peter J. and Mark Casson, 1976, *The future of the multinational enterprise* (Holmes and Meier, London).
- Buckley, Peter J. and Mark Casson, 1985, *The economic theory of the multinational enterprise: Selected papers* (Macmillan, London).
- Caves, Richard E., 1971, International corporations: The industrial economics of foreign investment, *Economica* 38, Feb., 1–27.
- Caves, Richard E., 1974, Causes of direct investment: Foreign firms' shares in Canadian and United Kingdom manufacturing industries, *Review of Economics and Statistics* 56, Aug., 279–293.
- Caves, Richard E., 1986, *Multinational enterprise and economic analysis* (Cambridge University Press, London).
- Caves, Richard E., 1989, Mergers, takeovers, and economic efficiency: Foresight vs hindsight, *International Journal of Industrial Organization* 7, 161–174.
- Coase, Ronald H., 1937, The nature of the firm, *Economica* 4, Nov., 386–405.
- Demsetz, Harold, 1983, The structure of ownership and the theory of the firm, *Journal of Law and Economics* 26, June, 375–390.
- Demsetz, Harold and Kenneth Lehn, 1985, The structure of corporate ownership: Causes and consequences, *Journal of Political Economy* 93, Dec., 1155–1177.
- Doukas, John and Nickolaos G. Travlos, 1988, The effect of corporate multinationalism on shareholders' wealth: Evidence from international acquisitions, *Journal of Finance* 43, Dec., 1161–1175.
- Dunning, John H., 1973, The determinants of international product, *Oxford Economic Papers* 25, Nov., 289–336.
- Dunning, John H., 1980, Towards an eclectic theory of international production: Some empirical tests, *Journal of International Business Studies* 11, Spring, 9–31.
- Errunza, Vihang R. and Lemma W. Senbet, 1981, The effects of international operations on the market value of the firm: Theory and evidence, *Journal of Finance* 36, May, 401–417.
- Errunza, Vihang R. and Lemma W. Senbet, 1984, International corporate diversification, market valuation, and size-adjusted evidence, *Journal of Finance* 39, July, 727–743.
- Ethier, Wilfred, 1986, The multinational firm, *Quarterly Journal of Economics* 101, Nov., 805–833.
- Ethier, Wilfrid and Henrik Horn, 1990, Managerial control of international firms and patterns of direct investment, *Journal of International Economics*, 25–45.
- Fatemi, Ali M., 1984, Shareholder benefits from corporate international diversification, *Journal of Finance* 39, Dec., 1325–1344.
- Grubert, Harry and Jack Mutti, 1991, Taxes, tariffs and transfer pricing in multinational corporation decision making, *Review of Economics and Statistics* 73, May, 285–293.
- Grubaugh, S., 1987, Determinants of direct foreign investment, *Review of Economics and Statistics* 69, Feb., 149–151.
- Harris, D., R. Morck, J. Slemrod and B. Yeung, 1991, Income shifting in U.S. multinational corporations, Working paper no. 3924 (National Bureau of Economic Research, Cambridge, MA).
- Helpman, E., 1984, A simple theory of international trade with multinational corporations, *Journal of Political Economy* 92, June, 451–471.
- Hines, James R. and E. Rice, 1990, *Fiscal paradise: Foreign tax havens and American business*, Working paper no. 3477 (National Bureau of Economic Research, Cambridge, MA).
- Hood, Neil and Stephan Young, 1979, *The economics of multinational enterprise* (Longman, London and New York).
- Horst, Thomas, 1972a, The industrial composition of U.S. exports and subsidiary sales to the Canadian market, *American Economic Review*, Mar., 37–45.

- Horst, Thomas, 1972b, Firm and industry determinants of the decision to invest abroad: An empirical study, *Review of Economics and Statistics* 54, Aug., 258–266.
- Horstmann, Ignatius J. and James R. Markusen, 1987, Strategic investments and the development of multinationals, *International Economic Review* 28, Feb., 109–121.
- Hynes, Stephen, 1976, The international operations of national firms: A study of direct foreign investment (MIT Press, Cambridge, MA) (Dissertation, 1960, MIT).
- Jarrell, Gregg A., J.A. Brickley and J.M. Netter, 1988, The market for corporate control: The empirical evidence since 1980, *Journal of Economic Perspectives* 2, Winter, 49–68.
- Jensen, Michael, 1988, Takeovers: Their causes and consequences, *Journal of Economic Perspectives* 2, Winter, 21–48.
- Jensen, Michael and William Meckling, 1976, The theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, Oct., 305–360.
- Jensen, Michael and K.J. Murphy, 1990, Performance pay and top-management incentives, *Journal of Political Economy* 98, Apr., 225–264.
- Lang, Larry, Rene Stulz and Ralph Walkling, 1989, Tobin's Q and the gains from successful takeovers, *Journal of Financial Economics* 24, 137–154.
- Lindenberg, Eric B. and Stephen A. Ross, 1981, Tobin's q ratio and industrial organization, *Journal of Business* 54, Jan., 1–32.
- Magee, Stephen P., 1977, Information and the multinational corporation: An appropriability theory of direct foreign investment, in: J.N. Bhagwati, ed., *The new international economic order* (MIT Press, Cambridge, MA) 317–340.
- Markusen, James R., 1984, Multinationals, multi-plant economies, and the gains from trade, *Journal of International Economics* 14, 205–226.
- Morck, R. and B. Yeung, 1991, Why investors value multinationality, *Journal of Business*, Apr., 165–188.
- Morck, R., A. Shleifer and R. Vishny, 1988, Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20, 293–315.
- Morck, R., A. Shleifer and R. Vishny, 1989, Do managerial objectives drive bad acquisitions?, Working paper no. 3000 (National Bureau of Economic Research, Cambridge, MA).
- Murphy, Kevin J., 1985, Corporate performance and managerial remuneration: An empirical analysis, *Journal of Accounting and Economics* 7, 11–42.
- Myers, Stewart C. and N.S. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187–221.
- Pugel, T.A., 1978, International market linkages and U.S. manufacturing: Prices, profits, and patterns (Ballinger, Cambridge, MA).
- Roll, Richard, 1986, The hubris hypothesis of corporate takeovers, *Journal of Business* 59, 197–216.
- Rugman, Alan, 1981, Internalization as a general theory of foreign direct investment: A reappraisal of the literature, *Weltwirtschaftliches Archiv* 116, 365–375.
- Singh, Harbir and C. Montgomery, 1987, Corporate acquisition strategies and economic performance, *Strategic Management Journal* 8, 377–386.
- Smith, Adam, 1976, orig. 1776, *The wealth of nations* (University of Chicago Press, Chicago, IL).
- Stulz, Rene M., 1988, Managerial control of voting rights: Financing policies and the market for corporate control, *Journal of Financial Economics* 20, 25–54.
- Travlos, Nickolaos, 1987, Corporate takeover bids methods of payments and bidding firms' stock returns, *Journal of Finance* 42, Sept., 943–963.
- Vaupel, J.W., 1971, Characteristics and motivations of the U.S. corporations which manufacture abroad, Paper presented to meeting of participating members of the Atlantic Institute, Paris, June.
- Vernon, R., 1971, *Sovereignty at bay: The multinational spread of U.S. enterprises* (Basic Books Inc., New York).
- Williamson, Oliver E., 1975, *Markets and hierarchies* (Free Press, New York).
- Wolf, B.M., 1977, Industrial diversification and internationalization: Some empirical evidence, *Journal of Industrial Economics* 26, Dec., 177–191.
- You, Victor, R. Caves, M. Smith and J. Henry, 1986, Mergers and bidders' wealth: Managerial and strategic factors, in: Lacy Glenn Thomas III, ed., *The economics of strategic planning: Essays in honor of Joel Dean* (D.C. Heath and Company, Lexington Books, Lexington, MA) 201–220.