2008

A study of cross-border takeovers: Examining the impact of national culture on internalization benefits, and the implications of early versus late-mover status for bidders and their rivals

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A Study of Cross-Border Takeovers: Examining the Impact of National Culture on Internalization Benefits, and the Implications of Early Versus Late-Mover Status for Bidders and Their Rivals

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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Date of Approval:
February 4, 2008

Keywords: mergers and acquisitions, hofstede's cultural dimensions, intangible assets, strategic pioneers, bidder gains, announcement effects, long-run returns

This dissertation is dedicated to my husband, best friend, and loving supporter, George, and to my most precious and joyful daughter, Sofia.

Acknowledgements

I am most thankful to the members of my committee, Scott Besley, Christos Pantzalis, and Jianping Qi for their generous time, support, and expertise throughout this dissertation.

I am especially grateful to the chair of my committee, Ninon Sutton, who guided me through all phases of this dissertation with great sincerity, vigor, and compassion. Your steady mentorship and friendship has nurtured my professional development as well as my everyday life. Thank you!

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ABSTRACT

This dissertation consists of two self-contained chapters that empirically examine bidder firm returns of U.S. companies in cross-border mergers and acquisitions.

In chapter one I examine how cultural distance between bidder and target country impacts internalization benefits. The results suggest that shareholders are initially concerned about the acquisition in culturally distant countries, which outweighs any potential benefits from internalization. However, in the long-run we observe a significant reversal of these findings. In the second and third year following the announcement, greater cultural distance positively impacts the bidder firm's operating performance and the bidder experiences significant internalization benefits from technological know-how when cultural distance is great. Long-run calendar-time returns further support this finding. These results add to the existing literature by highlighting the importance of cultural distance when examining internalization benefits.

In chapter two I attempt to explain abnormal bidder firms' returns in cross-border mergers and acquisitions by comparing the first-mover hypothesis to the late-mover hypothesis. I also study the reactions of rival firms to bidder firm announcements as a further test of the first-mover hypothesis. The findings suggest that cross-border acquisitions are generally value-destroying for strategic pioneers unless cultural distance between the U.S. and the target country is great. Further, I find positive announcement effects for followers as long as cultural distance is small.

Chapter 1

How Does National Culture Impact Internalization Benefits in Cross-Border Mergers and Acquisitions?

1.1. Introduction

During the past decade, acquisitions of foreign target firms have gained in popularity. Announcements, such as the acquisition of German-based Wella AG by Procter and Gamble for €4.65 billion in 2004, have become part of the regular business news. *The World Investment Report 2007*, issued by the United Nations, reported continuous increases in cross-border M&A activities, with a value of $880 billion in 2006 (p. 5).

Given the increasing importance of cross-border mergers and acquisitions, we have a vested interest in learning more about this exciting area. To date, empirical evidence on bidder firm returns in cross-border acquisitions provides mixed results. On average, U.S. bidder firms earn non-significant returns during the traditional 2-day announcement period of a cross-border M&A (Bruner (2004)). However, some studies have identified certain bidder characteristics that are associated with positive announcement returns. For example, Morck and Yeung (1992) examine cross-border M&As and find persistent positive abnormal announcement effects for bidder firms that possess substantial intangible assets. The authors thereby provide support for the internalization hypothesis, which suggests that firms might wish to export their intangible assets beyond domestic borders if the acquisition is beneficial and less costly than writing contracts (e.g. license and franchise agreements). The two types of intangible assets most frequently referred to in the internalization literature are technological know-how, proxied by research and development (R&D) expenditure, and marketing expertise, proxied by advertisement expense (see Morck and Yeung (1991, 1992)). Conn, Cosh, Guest, and Hughes (2005) extend the test of the internalization hypothesis by conducting a long-run study. They utilize a dummy variable to proxy for R&D-related intangible assets, and find that U.K. bidder firms that acquire foreign private targets experience significantly positive 36-month abnormal returns. However, the long-term performance of U.K. bidders that acquire foreign public firms is not significant.

In addition to research that examines the internalization theory, a separate research stream focuses on the impact of cultural differences between bidder and target countries on the bidder firm's wealth position. Cultural differences have previously been proxied by religion (La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999)), language (Stulz and Williamson (2003)), and law (Licht, Goldschmidt and Schwartz (2005)). The most recent literature, however, has recognized the value of Hofstede's cultural dimensions (Licht et al. (2005), and Benou, Gleason, and Madura (2007)). In his seminal work,

Hofstede (1980) surveyed more than 100,000 IBM employees from subsidiaries in more than 50 countries between 1967 and 1973. He found four distinct cultural dimensions: Power Distance Index (PDI), Individualism (IDV), Masculinity (MAS), and Uncertainty Avoidance Index (UAI). These cultural dimensions allow us to measure the similarity between national cultures.

The empirical evidence on whether the impact of Hofstede's cultural dimensions on bidder firm returns is positive or negative is inconclusive. On the one hand, Conn et al. (2005) find significantly positive announcement returns when the cultural difference is great between U.K. bidder firms and foreign target firms. Also, when controlling for factors such as bidder size, corporate governance, and method of payment (Chakrabarti, Jayaraman, and Mukherjee (2008)) as well as industry relatedness of the acquisition, year dummies, and industry dummies (Morosini, Shane and Singh (1998)), studies find a positive relation between cultural distance and bidder firm abnormal returns. In support of this positive relationship, researchers suggest that cross-border M&As provide access to valuable new routines and repertoires (Morosini et al. (1998)) and face less integration difficulties when the target firm remains autonomous (Chakrabarti et al. (2008)). On the other hand, Datta and Puia (1995) find a negative relation between bidder firm return and cultural difference when examining announcement effects on their sample of U.S. bidder firms. They attribute their result to increased acquisition costs that result from manager resistance, trust issues, and post-acquisition integration. Conn et al. (2005) confirm this negative relation for U.K. bidder firms that acquire publicly held foreign targets.

To date, the finance literature has shown evidence that cultural differences between bidder and target countries significantly impact bidder firm performance. In addition, the literature has clearly linked intangible-intensive U.S. bidder firms with significantly positive announcement returns in cross-border M&As. However, the internalization literature has not accounted for the impact that cultural environments of bidder and target countries have on the benefits that arise to bidder firms from internalizing intangible-related advantages.

The purpose of this study is to link these two research streams - that is, internalization theory and cultural dimensions - to shed light on the effect that culture has on the benefits of internalization in cross-border M&As. In particular, we examine how cultural distance influences announcement returns of bidder firms that possess technological know-how compared to marketing expertise. Due to the fact that technological know-how is more product-specific while marketing expertise is more location-specific, cultural differences might impact internalization benefits differently depending on the type of intangible asset the bidder firm possesses. Further, we address the joint effects of internalization and cultural differences between bidder and target countries in the long-run. Although Conn et al. (2005) provide insightful initial results on the separate effects of internalization and cultural distance on long-run bidder firm performance, it has yet to be determined how culture impacts internalization benefits in the long-run. Therefore, we move beyond simply comparing the impacts of high R&D expenditures and cultural distance on long-run bidder firm returns. Rather, we attempt to uncover how cultural distance affects the long-run performance of bidder firms depending on their levels of intangible assets. We further extend Conn et al.'s (2005) approach by looking at U.S. bidder firms instead of U.K. bidder firms, by utilizing a more appropriate use of Hofstede's measures of cultural

distance, and by incorporating a continuous measure of R&D level rather than a dummy variable. In addition, we add advertisement expense as a proxy for marketing expertise – that is, a second important intangible asset - to examine internalization benefits. The results of this study have important value implications for investors and firm managers alike because they learn how cultural differences impact a bidder firm's wealth depending on the type and level of intangible assets the firm possesses.

The remainder of this paper is organized as follows: Section 2 reviews the literature, Section 3 describes the hypotheses to be tested, Section 4 discusses the research methodology and data utilized to test the proposed hypotheses, Section 5 presents the empirical results, Section 6 states the study's conclusion, and Section 7 provides future research possibilities.

1.2. Literature Review

1.2.1. Internationalization Theory

The internationalization hypothesis suggests that possessing intangible assets creates value in foreign direct investment (FDI). This theory is based on the work of Hymer (1960, 1976), Buckley and Casson (1976, 1985), and Rugman (1989, 1991), among others.

In his seminal work, Hymer (1960) suggests that multinational corporations (MNCs) operating overseas face greater costs, such as communication and managerial expenses, compared to host country competitors. Therefore, if MNCs succeed overseas despite language barriers, cultural differences, and others costs created by operating in unfamiliar market conditions, they must possess some inherent advantages. Morck and Yeung (1992) find empirical evidence for such inherent advantages in the form of information-based intangible assets. They compare such intangible assets as technological know-how, marketing ability, and effective management to public goods because their value is expected to increase as firms expand their international operations. In their sample of 322 cross-border acquisitions by U.S. firms between 1978 and 1988, only firms that possess information-based intangible assets earn positive abnormal stock returns during the acquisition announcement period. Morck and Yeung (1992) conclude that international diversification is on average value destroying unless firms own considerable amounts of intangible assets in form of technological know-how or advertisement expertise.

One major reason why firms with intangible assets engage in cross-border acquisitions rather than alternative modes of entry into the foreign market, such as franchising or licensing, is to reduce moral hazard costs. As Williamson (1975, 1985) notes, whenever agents cannot costlessly write complete contracts that cover all possible outcomes, trading partners might face opportunities to exploit existing loopholes. Following this argument, contracts between a domestic firm and foreign market representatives are incomplete and present moral hazard problems, because it is too costly or impossible to devise and enforce a contract that completely prevents the foreign market representative from defecting. Foreign representatives, for example, might be in the position to unilaterally terminate contracts and utilize the newly obtained knowledge

in their own production facilities without properly compensating former trading partners. In addition to the moral hazard cost, it may be difficult for contract partners to agree on the true value of the traded asset, especially if it is an intangible asset such as technological know-how or marketing expertise. Consequently, when it is less costly to expand intangible assets into a foreign market through acquisition instead of contracting, firms will choose to engage in cross-border M&As. Firms will therefore internalize intangible assets as long as it lowers transactions costs and provides efficiency benefits (Buckley (1988)).

Harris and Ravenscraft (1991) find empirical support for the internalization theory in their study of 1,273 cross-border acquisitions of U.S. targets between 1970 and 1987. They find that, compared to domestic acquisitions, cross-border acquisitions take place more frequently in R&D intensive industries and that acquirer and target firms operate typically in related industries. Additional empirical evidence shows that high levels of intangible assets positively impact the market value of a multinational firm (Morck and Yeung (1991)). Utilizing a sample of 1,644 corporations and their 1978 data, Morck and Yeung (1991) regress firm value, as measured by Tobin's q, on firm size, R&D spending, advertising spending, and leverage. Given that multinational corporations tend to be larger than domestic firms, the authors choose firm size as a proxy for the firm's degree of multinationality. R&D expense proxies for technical expertise and advertising spending for consumer goodwill; both represent a measure of intangible assets. The regression result suggests that R&D and advertising spending positively affect a firm's market value as the firm becomes more multinational. Multinationality alone does not seem to impact firm value in this study. Therefore, the authors conclude that intangible assets drive the value in multinational firms. This is consistent with the internalization theory.

In addition to the regressions, Morck and Yeung (1992) conduct an event study and regress bidder firms' abnormal returns on intangible assets. This is the first event study that tests the internalization hypothesis, and the results support the hypothesis. The result of the 1-day abnormal announcement effect of 322 U.S.-based firms that acquired foreign targets during 1978 and 1988 provides evidence that bidder firm shareholders earn, on average, a significantly positive announcement return of 0.29 percent if the bidder firm owns intangible assets. It appears that smaller firms with more technological know-how experience greater abnormal returns than larger firms that possess more marketing expertise. The authors further find a positive relation between abnormal returns and manager ownership, and a negative relation between abnormal return and entrenchment. Although stock financing of domestic M&As is associated with a negative abnormal announcement effect for the bidder firm (Travlos (1987)), the effect in this cross-border sample is not significant.

1.2.2. The Influence of Culture on Cross-Border M&As

While the term "culture" is frequently used in our everyday lives, we do not have an exact definition for it. Webster's Dictionary defines culture as "all the knowledge and values shared by a society." The importance of culture has been recognized in numerous disciplines in the past, and it has been recently introduced into the financial research

arena. The challenge that researchers face when including culture into their analyses is to find the appropriate proxy to measure it.

Yeniyurt and Townsend (2003) suggest that nationality can proxy well for culture, where nationality consists of language, history and religion. They note that although some nations host diverse cultural groups, they all share common ideas about their identity, institutional systems, and worldview, which guarantee the nation's survival. Belgium, for example, is divided into two regions; Flanders in the north where people speak Flemish, and Walloonia in the south with French as the official language. Though the two cultural groups do not usually share universities, common media, or memberships to scientific organizations, the country is united with respect to politics and federal government as well as economic goals and national currency.

Stulz and Williamson (2003) examine how well common proxies for culture explain differences in investor rights among countries. Following La Porta, Lopez-de-Silanes, and Shleifer (1999) who use religion to proxy for culture, Stulz and Williamson (2003) find that a country's primary religion proxies better for creditor rights than language, legal system, and other previously used variables. In particular the authors find that creditors enjoy better protection in Protestant countries than in Catholic countries. The authors suggest that the Catholic faith is established on clerical knowledge and strict hierarchy within the church that consequently created a uniform structure. This concept of centralized leadership also spread into the legal system of catholic countries. Under the common law in these countries, power to interpret the law is given to the judge and judgments are derived based on case-specific circumstances. The protestants, on the other hand, believe in individualism, which fostered an environment where creditors gained protection against losses and the right to sue against defaulting debtors. Under the civil law of Protestant countries, all laws are clearly written down with specific repercussions upon their violation. Judges in civil law countries merely execute the law's implications rather than imputing their own interpretation of the law.

Licht et al. (2005) question the usefulness of religion as a proxy for culture. Religion typically only distinguishes between the Protestant and non-Protestant faith and is therefore not able to account for variation in national culture. Instead of utilizing religion, Licht et al. (2005) examine the relation between a country's legal rules and its culture. In particular, the authors focus on how well investor protection laws, as outlined by La Porta, Lopez-de-Silanes, Shleifer, and Vishney (1998), can predict national culture. To measure culture, Licht et al. (2005) utilize Schwartz (1994) and Hofstede (1980) cultural value dimensions. The findings indicate that English-speaking countries exhibit close relations between their investor rights and national culture. However, the same does not hold for all countries. Licht et al. (2005) note that while some countries adopted legal systems voluntarily, other countries were forced into legal rules of occupying powers. It is therefore not surprising to observe countries within the same legal family that differ significantly in their cultural values.

The recent finance literature has recognized another proxy to measure culture, Hofstede's cultural dimensions (Benou et al. (2007); Licht et al. (2005)). For his seminal work, Hofstede (1980) surveyed more than 100,000 IBM employees from subsidiaries in more than 50 countries between 1967 and 1973. From this survey, Hofstede developed cultural dimensions that allow us to measure how similar or dissimilar different national

cultures are (Hofstede (1980)). Raw scores for 56 countries are available for the following four main cultural dimensions: *Power Distance* (PDI), *Individualism* (IDV), *Masculinity* (MAS), and *Uncertainty Avoidance* (UAI). *Power Distance* (PDI) describes the extent to which people accept inequality in a country's society.[1] Austria ranks lowest in the PDI category while Malaysia ranks highest, next to Guatemala, and Panama. *Individualism* (IDV) measures a culture's focus on individual rights compared to collective group-oriented behavior. The U.S., the United Kingdom, and Australia rank among the most individuality-oriented countries, while South American and Asian countries rank among the most collective-oriented countries. *Masculinity* (MAS) indicates whether a country is male dominated and focused on achievement, control and power structure. Japan and Hungary are the most male-dominated countries, while Sweden and Norway treat women most equally. Finally, *Uncertainty Avoidance* (UAI) focuses on the degree of ambiguity that a country feels comfortable facing. This measure is displayed in the country's laws and regulations which are either more or less well defined. Greece and Portugal are the most rule-based countries with low uncertainty, while Singapore, Jamaica, and Denmark are the most risk-loving countries. With the help of cluster analysis, Hofstede grouped countries into the following cultural regions: Anglo, Germanic, Nordic, More Developed Latin, Less Developed Latin, More Developed Asian (consisting only of Japan), Less Developed Asian, and Near Eastern.

Studies that utilize Hofstede's cultural dimensions find mixed evidence pertaining to the impact of cultural distance on the performance of cross-border acquisitions. On the one hand, research suggests that greater cultural difference between two countries creates negative wealth effects for bidder firms' shareholders (Datta and Puia (1995)). Possible reasons are increased acquisition costs due to manager resistance, trust issues, and post-acquisition integration (Datta and Puia (1995)). On the other hand, when controlling for other factors such as bidder size, corporate governance, and method of payment (Chakrabarti et al. (2008)) as well as industry relatedness of the acquisition, year dummies, and industry dummies (Morosini et al. (1998)), researchers find a positive relation between bidder firm wealth effects and cultural distance (Morosini et al. (1998); and Chakrabari et al. (2004)). A possible explanation for this finding is that cross-border M&As facilitate the transfer of valuable new routines and repertoires between culturally diverse countries (Morosini et al. (1998)). It is also possible to minimize integration costs by allowing the target firm to continue its operations under great autonomous control (Chakrabari et al. (2004)).

1.2.3. Empirical Evidence on Short-Run Performance in Cross-Border M&As

Bruner (2004) summarizes the results of announcement wealth effects to bidder firms' shareholders in 14 cross-border M&A studies. Five of these studies focus on U.S. firms bidding on foreign firms and their findings over a 2-day announcement window indicate on average non-significant cumulative abnormal returns. For example, Biswas, Fraser and Mahajan (1999) compare the results of cross-border M&As with domestic mergers. Their sample consists of 171 financial institutions that announced cross-border M&As between 1977 and 1987, as well as a matched control sample that accounts for domestic M&As. In support of the diversification theory, the authors find significantly

negative announcement returns to bidder firms in domestic acquisitions. However, the announcement returns to bidder firms in cross-border M&As are not significant. Further, firms that go abroad for the first time do not earn significant returns on the announcement date (Doukas and Travlos (1988)).

Non-U.S. bidders exhibit similar, mostly non-significant results (Bruner (2004)). However, Conn and Connell (1990) find significant negative abnormal announcement returns for non-U.S. bidder firms in cross-border M&As between 1971 and 1980. Negative announcement effects to U.S. bidder firms in cross-border M&As have also been observed and are associated with acquisitions of target firms that operate in a different industry than the bidder firm (Markides and Ittner (1994)) and acquisitions of Canadian target firms (Kiymaz and Mukherjee (2000); and Eckbo and Thorburn (2000)).

Besides insignificant and negative bidder firms' announcement returns, other studies find positive wealth effects. In the case of a small sample of 16 Japanese bidder firms that acquired U.S. target firms during 1981 and 1991, Pettway, Sicherman and Speiss (1993) report positive and significant abnormal announcement returns for the bidder firms. Positive announcement returns are also observed in cross-border M&As with U.S. bidder firms. For example, Doukas and Travlos (1988) examine 301 cross-border acquisitions by U.S. firms during 1975 and 1983. They find that bidder firm shareholders of multinational firms realize significant positive abnormal announcement returns of 0.31 percent if they do not already operate in the target country and it is not their first time going abroad. Looking at their entire sample of cross-border M&As, Doukas and Travlos (1988) further show that bidder firm shareholders' 2-day announcement returns are positively impacted when their firm moves into a less developed target country. Markides and Ittner (1994) follow the Doukas and Travlos (1988) approach when looking at 276 cases of foreign acquisitions by U.S. bidder firms between 1975 and 1988. The bidder shareholder cumulative abnormal return in their study is positive at 0.32 percent for the two days surrounding the announcement, significant at the 10 percent level, and positive at 0.54 percent for a 5-day window, significant at the 5 percent level. Contrary to Doukas and Travlos (1988), this study indicates that related acquisitions create greater bidder shareholder abnormal returns. In addition, the regression analysis suggests that bidder firms' gains are positively related to advertising intensity (but not to R&D intensity), target size, oligopolistic industries, U.S. dollar strength, and previous international experience. The authors therefore conclude that cross-border M&As, on average, provide wealth increase for bidder firms. Cash payments instead of stock payments or a mix of payment methods (Biswas et al. (1999)) and foreign target purchases in Germany, Italy and Switzerland (Kiymaz and Mukherjee (2000)) further tend to increase the bidder firm's announcement returns.

1.2.4. Empirical Evidence on Long-Run Performance in Cross-Border M&As

Long-run analysis in cross-border M&As has only recently been explored and the findings so far are inconclusive. For example, Black, Cannes and Jandik (2001) examine the long run abnormal return of 361 U.S. bidder firms in cross-border M&As for one, three, and five years. The targets were acquired between 1985 and 1995. Following the buy-and-hold methodology suggested in Lyon, Barber and Tsai (1999), the authors

minimize the new listing, rebalancing, and skewness biases and find on average significantly negative abnormal returns during the three and five years following the M&A. They also show that bidder firm returns are negatively related to target acquisitions that are financed with stock payment, which is line with Lougrhran and Vijh (1997).

Aw and Chatterjee (2004) confirm the negative bidder firm returns in the long run. They examine 41 cross-border mergers of U.K. bidders and U.S. and continental European targets during 1991 and 1996. Concentrating on M&As in excess of $400 million, the authors find significantly negative long-run bidder firm abnormal returns that increase with time. Utilizing a simple market model to estimate the abnormal returns, these returns range from -4.46 percent over a 6-months post-event window to -24.40 percent over a 2-year post-event window. Results under the adjusted market model are slightly lower but they follow the same trend. The authors did not find differences in abnormal returns based on observation periods. Among other reasons, Aw and Chatterjee (2004) suggest that differences in culture might cause this negative bidder abnormal return.

Chakrabarti et al. (2008) provide additional support for negative bidder firm returns in the long run. They focus primarily on the long-run (30 and 36 month) abnormal bidder firm return of cross-border M&As. Their sample consists of 405 international M&As between 1991 and 2000. Utilizing the buy-and-hold methodology, they find significant negative abnormal returns that increase in magnitude between 12 (-0.049 percent) to 36 months (-0.149 percent) after the effective acquisition date. Contrary to Conn et al. (2005), Chakrabarti et al. (2008) find that bidder firms benefit from cross-border M&As in the long-run if the bidder and target firms are from different cultural environments. When using Hofstede's cultural difference measures separately instead of an index, the authors find that only power distance is positively related with abnormal return. The Hofstede index for cultural distance is not significant during the announcement of the M&A where the authors find a positive and significant abnormal return of 0.714 percent over a 3-day window.

Besides the empirical evidence for negative wealth effects of cross-border M&As in the long-run, studies have also found positive implications of cross-border M&As for the bidder firm in the long-run. For example, Black et al. (2001) find positive relations between abnormal returns and book value of assets as well as market-to-book value. Conn et al. (2005) examine a total of 4,000 M&As by U.K. bidders between 1984 and 1998, of which 1,140 are cross-border acquisitions. The 3-day announcement return in cross-border M&As, measured utilizing standard event study methodology, is insignificant for the entire cross-border sample but significantly positive when the target is a privately held firm. The authors apply calendar-time methodology and find that the 3-year post acquisition return is significantly negative with -32 percent, but not significantly different from zero when the target is privately held. Different from Black et al. (2001), Conn et al. (2005) find no impact of method of payment on the abnormal return. Compared with domestic M&As, cross-border activities perform better and result in less negative abnormal return. The authors find no significance with La Porta, Lopez-de-Silanes, Shleifer, and Vishny's (2000) legal systems, accounting standards, different tax treatments, and differences in exchange rates during the announcement. However, the

authors did find support for the internalization theory because high-tech firms that are involved in a cross-border M&A create positive announcement and long-run returns, while M&As with non-high-tech firms create no announcement effects and negative long-run returns. The authors further find evidence of the importance of Hofstede's cultural difference measures, as abnormal returns increase with less cultural differences between bidder and target country. Risk diversification and currency strength do not appear to be factors that impact announcement or long-run returns.

Clearly, the findings of the impact of cultural distance on the long-term performance are not yet conclusive and require additional examination. Also, so far we have not determined how cultural distance between bidder and target countries impacts the wealth effects of bidder firms with intangible assets. This study will add to the existing literature by testing how cultural distance influences the internalization hypothesis in cross-border M&As.

1.3. Hypotheses

According to Bruner's (2004) summary on short-run bidder returns in cross-border M&As, U.S. bidder firms, on average, earn non-significant abnormal announcement returns. We expect therefore to find insignificant abnormal announcement returns in our full sample that includes U.S. bidder firms that acquired non-U.S. targets during our sample period. However, we anticipate positive abnormal announcement returns to U.S. bidder firms that invest significantly in R&D or advertisement, as suggested by the internalization hypothesis (see Morck and Yeung (1992)).

We contribute to the literature by linking the internalization theory with Hofstede's (1980) cultural dimensions and examine how culture impacts the internalization benefit in cross-border M&As. For this purpose, we divide a bidder firm's intangible assets into technological know-how, proxied by R&D expense, and marketing expertise, proxied by advertisement expenditure. We examine these intangible assets separately and observe what impact culture has on bidder firms' returns depending on what type of intangible asset they possess. Technological know-how is a product specific asset that does not substantially dependent on the local market. Therefore, technological know-how should be easily transferable between countries. Marketing expertise, on the other hand, is a market specific asset. Consequently, a marketing oriented firm may wish to expand only into countries where it can utilize its expertise and choose target countries with similar market environments.

The impact of culture on the internalization benefit for firms with technological know-how can be twofold. Similar to Morosini et al. (1998), we might observe a positive relationship between cultural distance and bidder firm announcement effect if it is beneficial to internalize the intangible assets between culturally different countries. This is plausible if contracting (e.g. licensing and franchising) is less expensive in culturally similar climates. If this is true, an increasing difference between two countries' cultures is likely to make contracting more costly and the purchase of a foreign company more attractive. The benefits from internalization, therefore, could increase with cultural distance.

Hypothesis 1a: Cultural distance between target and bidder countries should positively affect the announcement return for bidder firms with high levels of technological know-how if it is beneficial to internalize the intangible assets between culturally different countries.

On the other hand, if the bidder firm owns technological know-how that it wishes to internalize among more than only the domestic market, it is reasonable to assume that bidder firm and target firm have to work together closely and integrate the target firm successfully. Because countries cultivate organization styles and administration routines based on their national culture (Kogut and Singh (1988)), integration would be much easier to accomplish if bidder firm and target firm share similar norms and values. Following this rationale, Datta and Puia (1995) imply that less cultural distance eases post-acquisition integration of the target firm. Thus, we could also observe a negative relation between cultural distance and bidder announcement effects.

Hypothesis 1b: Cultural distance between target and bidder countries should negatively affect the announcement return for bidder firms with high levels of technological know-how if cultural distance increases the cost of post-acquisition integration of the target firm.

The second type of intangible asset that is important in the internalization literature is marketing expertise. Because marketing strength is based on a firm's expertise about the home market, firms might find it easiest to internalize this intangible among foreign markets with similar cultural backgrounds. When a firm's core advantage stems from marketing expertise, it might be too costly to enter dissimilar cultural environments. In this situation we expect to find a negative relation between cultural distance and bidder firm return for advertisement-strong bidders.

Hypothesis 2a: Cultural distance between target and bidder countries should negatively affect the announcement return for bidder firms with high levels of marketing expertise if it is less costly to internalize this intangible asset among markets with similar cultural backgrounds.

On the other hand, it is also conceivable that firms with strong marketing expertise benefit from greater cultural distance because this platform allows them to differentiate themselves from competition. Firms with less marketing expertise are likely to compete domestically and in countries with similar culture, but they are less likely to have the resources to adapt to a market with a different culture. In addition, it is feasible that local marketing in the target country is less sophisticated if countries with great cultural distance are primarily developing countries. Therefore, firms with superior marketing expertise might find it more beneficial to transfer their intangible asset into markets with greater cultural differences.

Hypothesis 2b: Cultural distance between target and bidder countries should positively affect the announcement return for bidder firms with high levels of marketing expertise if this intangible asset provides them with a competitive advantage relative to the competition from their home countries and/or the target country.

In the long-run, studies provide evidence of significantly negative bidder firm returns (see Aw and Chatterjee (2004); and Black et al. (2001)). This observation is due to difficulties in predicting future earnings from targets with dissimilar accounting standards (Black et al. (2001)), difficulties in valuing synergy effects (Moeller and Schlingemann (2004)), and difference in culture (Aw and Chatterjee (2004)), among other reasons. However, Conn et al. (2005) find positive long-run returns in cross-border M&As when the bidder is a high-tech firm. This provides support for the internalization hypothesis in the long-run. As a further test of the internalization hypothesis, we expect that the long-run bidder returns for firms with high levels of intangibles are non-negative.

Hypothesis 3: The long-run performance of U.S. bidders with high levels of intangibles in cross-border takeovers should be non-negative.

We further contribute to the literature by linking the internalization theory with Hofstede's (1980) cultural dimensions and examine how culture impacts the long-run internalization benefit in cross-border M&As. Similar to our predictions for the announcement period, we expect the long-run returns of bidder firms with high levels of technological know-how to be either positive or negative.

Hypothesis 4a: Cultural distance between target and bidder countries should positively affect the long-run return for bidder firms with high levels of technological know-how if it is beneficial to internalize the intangible assets between culturally different countries.

Hypothesis 4b: Cultural distance between target and bidder countries should negatively affect the long-run return for bidder firms with high levels of technological know-how if less cultural distance eases post-acquisition integration of the target firm.

The second type of intangible asset, marketing expertise, might be easiest internalized among foreign markets with similar cultural backgrounds. Similar to the announcement effect, we expect to find a negative relation between cultural distance and bidder firm long-run return for advertisement-strong bidders if it is too costly to enter dissimilar cultural environments. Alternatively, marketing expertise can provide the firm with a competitive advantage that is most valuable in countries with great cultural distance.

Hypothesis 5a: Cultural distance between target and bidder countries should negatively affect the long-run operating performance for bidder firms with high levels of marketing expertise if it is less costly to internalize this intangible asset among markets with similar cultural backgrounds.

Hypothesis 5b: Cultural distance between target and bidder countries should positively affect the long-run operating performance for bidder firms with high levels of marketing expertise if this intangible asset provides them with a competitive advantage relative to the competition from their home countries and/or the target country.

1.4. Data and Methodology

1.4.1. Sample Description

Our sample consists of 468 U.S. publicly traded firms that announced and completed cross-border M&As during 1987 and 2004. All sample firms and their announcement dates are obtained from Thomson Financials SDC Platinum database. To be included in the sample

(1) The announcement dates was confirmed using the *Wall Street Journal* or the Lexis-Nexis News Wire file.
(2) Appropriate stock and firm information was available on the Center for Research and Security Prices (CRSP) files and the Compustat database.
(3) Following André, Kooli and L'Her (2004) and others, the transaction values for the cross-border deals are greater than $10 million, which eliminates small acquisitions without significant economic implications from our data set.
(4) All takeovers reflect at least majority stake acquisition of the target firm.
(5) Similar to Fee and Thomas (2004), we exclude public utility firms (SIC code 4900-4999) and financial institutions (SIC code 6000-6999) from the sample because those industries are heavily regulated.

We collect additional data on exchange rates from the Federal Reserve Bank, and bidder firms' involvement overseas from the Directory of Corporate Affiliations. The observations for the dependent variables in our sample are winsorized at the top and bottom 1 percent to adjust for outliers.

Table 1.1 explains the variables used in the paper's analyses. Tables 1.2 and 1.3 describe the distribution of the cross-border M&A announcements by target country and announcement year. Specifically, Table 1.2 indicates that more than half of all acquired target firms are from the United Kingdom (26.5%), Canada (16.5%), and Germany (10.0%). The cultural distance between the U.S. and these target countries is noticeably low at 0.08, 0.13, and 0.44, respectively. At the same time, U.S. firms acquire targets in countries with high cultural distance very infrequently during the same sample period. Some of the highest cultural dimensions measures are 8.07 for Iceland (1 acquisition),

4.24 for Portugal (1 acquisition), and 4.13 for the Russian Federation (3 acquisitions). The apparent negative correlation between frequency and cultural distance is highly significant with -0.45.

Table 1.3 exhibits our sample's distribution of cross-border M&A announcements by year. The number of acquisitions in our sample begins to increase notably in 1995, with about 85 percent of the overall observations occurring in the last ten years of our sample period. The increase in cross-border acquisitions in our sample is in line with Black (2000) who states that an international merger wave began in 1993. The years with the highest number of announcements are 2000 (13.89%), 1998 (11.32%), and 2004 (9.62%).

Table 1.4 provides descriptive statistics for the announcing bidder firms. On average, U.S. firms spend more money on research and development than on advertising. Of all announcements, 43 percent have previous announcements in the sample, 68 percent have previous international experience, 62 percent have previous experience in either the target country or the target country's regional area, and 33 percent have previous experience in the actual target country. A vast majority (78 percent) of all acquisitions are financed using cash rather than stock or other forms of payment. Further, 11 percent of all acquisitions are for target firms in developing countries, and 36 percent of all acquisitions are in the same industry, where bidder and target firms share the same 4-digit SIC code. The variability for R&D expenses, advertisement expenses, cultural distance, size, and bidder profitability is relatively low, whereas the variability for the difference of gross domestic income between the U.S. and the target country as well as the strength of the U.S. dollar relative to the foreign currency varies noticeably.

1.4.2. Short-Run Performance

We utilize standard event study methodology to obtain the bidder firms' announcement returns. This model estimates the abnormal return for Security i on Day t, AR_{it}, by subtracting the security's expected return, $E(R_{it})$, from its actual return, R_{it}. The expected return is estimated using Fama's (1976) market model.

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} \qquad (1)$$

$$AR_{it} = R_{it} - E(R_{it}) \qquad (2)$$

The estimated parameters α_i and β_i in Equation (1) are obtained using an OLS regression of security returns, R_{it}, with market returns, R_{mt}, during the estimation period, where R_{mt} is the return on the CRSP value-weighted index to proxy for the market index on Day t. Our estimation period used in the OLS regression spans from Day -300 to Day -50, where Day 0 denotes the event day – that is, the day on which the cross-border M&A is announced.

1.4.3. Long-Run Performance

Our tests for long-run performance are divided into two sections. First, we examine the long-run abnormal stock return by employing the calendar-time portfolio approach as first introduced by Jaffe (1974) and Mandelker (1974) and later applied and enhanced by Fama (1998), Mitchell and Stafford (2000), and Khotari and Warner (2005). Next, we examine the long-run operating performance, following Fee and Thomas (2004).

1.4.3.1. Calendar-Time Portfolio Approach

In the short-run, "methodologies based on the OLS market model and using standard parametric tests are well-specified" (Brown and Warner (1985), p. 25). However, in the long-run, even slight errors in calculating the beta risk to obtain the expected returns can result in significant economic differences when calculating the abnormal returns. Two methodologies that have been developed to provide more reliable results are the buy-and-hold methodology as advocated by Lyon et al. (1999), among others and the calendar-time portfolio approach as supported by Mitchell and Stafford (2000), p.308, among others. While both methodologies perform well in random samples, they suffer from misspecifications in nonrandom samples and can cause the study of long-run abnormal returns to be "treacherous" (Lyon et al. (1999)). One problem inherent in the buy-and-hold approach is the violation of the independence assumption due to overlapping return periods that causes test statistics to be misspecified (Lyon et al. (1999)). The calendar-time portfolio approach overcomes this issue. "By forming event portfolios, the cross-sectional correlations of the individual event firm returns are automatically accounted for in the portfolio variance at each point in calendar time" (Mitchell and Stafford (2000)). Because the calendar-time portfolio methodology does not require independence between the abnormal returns, we proceed with this approach.

Following Mitchell and Stafford (2000) and Lyon et al. (1999), we calculate the monthly portfolio returns of our bidder firms that acquired non-US targets within 12 months prior to each particular calendar month. We repeat this procedure to also obtain portfolio returns of firms that acquired a foreign target firm within the past 36 and 60 months. The portfolios are rebalanced monthly, where bidder firms are dropped 12, 36, or 60 months after the M&A, and bidder firms that just purchased a foreign target are added. We eliminate returns of firms that have more than one M&A within the event period. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt} \quad (3)$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small and big firms, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the

average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

We repeat the long-run stock return calculation for the sub-sample of bidder firms that exhibit significant R&D expenses and also for bidder firms that exhibit significant advertisement expenditures. To determine significant R&D and advertisement expenses, we find the median R&D and advertisement expenses for each involved industry, and classify firms with R&D and advertisement expenses above their industry median as possessing significant amounts of intangible assets.

1.4.3.2. Operating Performance

We follow Fee and Thomas (2004) when measuring operating performance. The performance measure is calculated by dividing cash flows (Compustat item 13) by sales (Compustat item 12). We compare the sample firms' operating performance to the performance measures of each involved industry, obtained from Compustat. While Fee and Thomas (2004) compare after-M&A operating performances to pre-M&A operating performances (comprised of bidder firm and target firm cash-flow to asset ratios), we are only interested in the bidder firm's performance up to three years after the acquisition. We want to examine the long-term operating performance after the cross-border M&A. Considering that the integration of a new target firm into the overall firm structure requires some time, it seems reasonable to focus on the operating performance of the combined firm from the year of the M&A until three years into the future.

1.4.4. Cross-Sectional Regression

We regress the abnormal stock returns of the short-run and long-run on explanatory variables. Specifically we test whether the abnormal returns of our complete bidder firm portfolios are positively related with R&D and advertisement expenses. A positive relation, especially in the long-run, would further strengthen the internalization hypothesis and extend Morck and Yeung's (1991, 1992) short-run evidence.

We continue to test whether the abnormal stock returns of bidder firms with significant R&D and advertisement expenses are related to Hofstede's (1980) cultural distance measure. Following Kogut and Sing (1988), we combine Hofstede's four most common cultural dimensions, which are individualism (IDV), uncertainty avoidance (UAI), power distance (PDI) and masculinity (MAS), into one distance measure.

$$\text{Hofstede's Cultural Distance Measure} = \frac{\sum_{i=1}^{4}\left(\frac{(S_{B,i} - S_{T,i})^2}{V_i}\right)}{4}$$

Here S_{Bi} is the bidder country score for Dimension i, S_{Ti} is the target country score for Dimension i, and V_i is the variance of the index score of Dimension i.[2] When we divide our results for the cultural distance measure into high and low cultural distance between the target country and the United States, our grouping corresponds with that of Benou,

Gleason, and Madura (2007) who categorize cultural distance using hierarchical cluster analysis.

1.4.5. Control Variables

Following the previous research, we control for the most commonly used variables. These control variables are included both in the cross-sectional regression of the announcement effect and the long-run abnormal operating results. We control for the following variables:

Size	Indicates bidder firm's size as measured by the natural logarithm of the firm's total assets. This information is obtained from Compustat.
Cash	Takes the value of 1.0 if the transaction is completely financed by cash payment, and zero otherwise. We typically observe positive relations between cash payments and wealth gains to both bidder and target firms (see for example Harris and Ravenscraft (1991)). The variable information is obtained from the SDC database.
Exrate	Indicates the relative strength of the target country's currency with respect to the U.S. dollar. The strength of the home currency versus the foreign currency can impact the cost of the cross-border M&A transaction (see for example Kiymaz and Mukherjee (2000)). Similar to Harris and Ravenscraft (1991), we calculate the strength of the target currency with respect to the U.S. currency by subtracting the average exchange rate (in terms of U.S. dollar) in the announcement year from the average exchange rate (in terms of U.S. dollar) during the sample period and dividing the result by the average exchange rate during the sample period. Positive results indicate that the foreign currency was stronger during the announcement year than during the average sample period, while negative results point to the opposite. The exchange rate data are obtained from the Federal Reserve Bank.
Dev	Takes the value of 1.0 if the target country is a developing country, and zero otherwise. This information is obtained from the World Bank.
Bprofit	Indicates the bidder firm's profitability in the year of the cross-border M&A, calculated by the bidder's annual income divided by its total assets. This information is obtained from Compustat.
Related	Takes the value of 1.0 if the target and bidder firms operate in related industries, measured by the 4-digit SIC code, and zero otherwise. This information is obtained from Compustat. Previous literature has argued that acquisitions within the same industry are, on average, more successful

than acquisitions between different industries (see Bhagat, Shleifer, and Vishny (1990); and Markides and Ittner (1994)).

Prior1 — Takes the value of 1.0 if the bidder has any other international involvement at the time of the cross-border M&A announcement, and zero otherwise. This information is obtained from the Directory of Corporate Affiliations.

Prior2 — Takes the value of 1.0 if the bidder already has previous involvement in the target country at the time of the cross-border M&A announcement, and zero otherwise. This information is obtained from the Directory of Corporate Affiliations.

Prior3 — Takes the value of 1.0 if the bidder has previous involvement in the geographic region where the target country is located at the time of the cross-border M&A announcement, and zero otherwise. This information is obtained from the Directory of Corporate Affiliations.

1.5. Results

1.5.1. Short-Run Results

Table 1.5 shows univariate results for the 2-day and 3-day mean and median cumulative abnormal returns for the bidder firms in our sample. The results for the full sample indicate positive mean (0.5 percent) and median (0.3 percent) 2-day abnormal returns, similar to observations by Pettway et al. (1993) and Doukas and Travlos (1988). However, the significance level is only marginal at 10 percent, and the 3-day abnormal mean and median returns are not significant, which is in accordance with the Bruner's (2004) findings of mostly non-significant cumulative abnormal returns for U.S. bidder firms in cross-border M&As. When we examine the cumulative abnormal returns in more detail, we find statistical significance for several subgroups. Specifically, the abnormal returns are significantly positive with 0.8 percent (2-day CAR) and 0.9 percent (3-day CAR) when the acquisition is financed using cash, which supports previous findings by Biswas et al. (1999). We further find significantly positive abnormal returns of 1.1 percent (2-day CAR) and 0.9 percent (3-day CAR) when the firm had no previous announcement during the sample period, and positive abnormal returns of 0.9 percent (2-day CAR) and 0.5 percent (3-day CAR) when the acquisition is between firms that do not operate in the same industry. The median abnormal 2-day return shows some weak positive significance when the firm has below average advertisement expenses, the target firm is in a developed country, and the cultural distance is low. Similar to Kiymaz and Mukherjee (2000), we find significantly positive abnormal returns of 2.6 percent (2-day CAR) and 2.8 percent (3-day CAR) when the target firm is located in Germany. We also find some positive significance for abnormal returns when the target firm is located in Australia.

Table 1.6 shows the event study regression results. In Model 1, we regress the 3-day mean cumulative abnormal return on the bidder firm's level of R&D, advertisement expenses, cultural distance between the U.S. and the target firm's country, as well as on interaction terms between the individual intangible assets and cultural distance. Following Aiken and West (1991), we use centered values for both intangible assets and cultural distance variables in the model by subtracting the sample mean from the raw score of these variables, which makes the interpretation of the regression coefficients more realistic. Without the centering approach we must interpret the coefficients of RD and AdE as the impact on the dependent variable conditional on zero cultural distance. Centering allows us to interpret the coefficient of RD and AdE assuming average cultural distance.[3] Similarly, we can interpret cultural distance assuming average levels of intangibles rather than the assumption that expenses for intangibles are equal to zero.

We find that R&D expenses, cultural distance, and the interaction term between these two variables all create significantly negative wealth effects in the short-run. Our result thereby expands the findings of Morck and Young (1992), who report positive abnormal announcement returns for bidder firms that possess high levels of intangible assets, but who do not account for differences in national culture. In particular, we show that internalizing intangibles is association with wealth destruction in the presence of average and, more severely, high cultural distance. This result provides support in favor of Hypothesis 1b. Investors are likely to be concerned about the bidder firm's ability to successfully integrate target firms when cultural norms and values differ greatly (Kogut and Singh (1988), and Datta and Puia (1995)). Specifically, the results suggest that the investors' concerns outweigh any potential benefits from internalization of technological know-how.

The second intangible asset, marketing expertise, does not contribute to explaining the cumulative abnormal announcement return. This finding is consistent with Morck and Yeung (1992), who conclude that technological know-how might be more easily transferred overseas than marketing expertise. Our results suggest that on average the market does not consider the marketing expertise for our sample firms upon a cross-border M&A announcement. We verify this finding in Model 2, where we regress the cumulative abnormal return on additional explanatory variables as well as on industry dummies and year dummies. The interaction term between R&D and cultural distance remains negative and significant at the 1 percent level, while the impact of advertisement expenses on the announcement return remains insignificant. Model 2 further suggests that larger bidder firms experience negative announcement effects, which is consistent with previous findings (Morck and Yeung (1992)). Lastly, Model 2 indicates that acquisitions that are financed using cash rather than stock payment or a mix of payment methods are significantly positively associated with announcement returns. This finding supports our univariate results of significantly positive cumulative abnormal returns for the subsample of cash transactions.

1.5.2. Robustness Checks for the Short-Run

All our regression models use robust standard errors. To ensure consistency in the results, we also regress the 2-day cumulative abnormal returns on the explanatory

variables. The results widely mirror those of the 3-day cumulative abnormal returns. Table 1.7 shows additional robustness tests. In Model 1 we control for firms that had previous announcements in our sample. We include this test because the univariate results showed significantly positive cumulative abnormal returns for bidder firms that have no previous announcements in the sample. As expected, the control variable is negative and statistically significant at the 5 percent level. This implies that subsequent announcements are associated with negative wealth effects relative to firms that have their first announcement. Including this control variable does not alter our findings for the interaction term between R&D and cultural distance. In Model 2 we control for differences between income levels in the U.S. and the target country. Typically the U.S. has the higher income levels, measured by gross national income.[4] We include this variable because of the significantly positive correlation of 0.57 between cultural distance and difference in gross national income. Countries with high cultural distance also tend to have low gross national income, which happens mostly in developing countries. Model 2 shows that both cultural distance and the interaction between cultural distance and R&D remain negative and the 5 percent and 1 percent level, respectively.

In Model 3 and Model 4 we expand on the previous models by controlling for investors' legal rights as introduced by LaPorta, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998) [LLSV]. If the Hofstede index captures aspects of national culture and is not subsumed in LLSV's control variables, then our regression findings from the previous table should continue to hold. We also control for bidder firms' previous experience in the target country and its geographic area.

Model 3 include the legal rights variable Civil to indicate that the bidder firm acquires a target from a civil law country. LLSV have shown that shareholder protection is lower in countries with civil law than in countries with common law. Rossi and Volpin (2004) show that takeover markets are more active in countries with better investor protection. Less competition in civil law countries can reduce the acquisition cost for foreign targets and therefore increase the potential profit to the bidder firm. Our findings are robust to the inclusion of the target country's legal system. Model 4 includes Corruption, which is another LLSV measure for shareholder protection. Again, we find that our results remain unchanged.

We also control for additional variables that are not included in the table. In particular, we look at regressions controlling individually for previous bidder firm experience internationally (Prior1), the target country specifically (Prior2), and the geographic area of the target country (Prior3). Our main results remain consistent. We further control for tech-bubble period (see Brunnermeier and Nagel (2004)), expansion versus recession periods,[5] and relative size (see Benou et al. (2007)), and the main results do not change. Lastly, we run all models excluding countries and years for which the univariate analysis showed significantly positive cumulative abnormal returns. We find that the regression results continue to hold. These robustness checks lend further support to Hypothesis 1b, suggesting that investors are concerned about the bidder firm's ability to internalize its intangible assets when the target country's culture differs significantly from the U.S.

1.5.3. Long-Run Results

1.5.3.1. Calendar-Time Portfolio Approach

Long-run analysis of our sample firms provides additional support for the internalization hypothesis. Table 1.8 shows the results of abnormal stock performance in Years 1, 3, and 5 after the cross-border acquisition announcement. Consistent with Conn et al. (2005), we find that firms with high levels of technological know-how perform better than firms with low levels of technological know-how, where technological know how is measured by the expenses in R&D relative to sales in the year prior to the announcement. Specifically, we find normal long-run performance for the entire sample (Panel A) as well as for the subsample of firms with high levels of R&D (Panel B). However, firms with below industry-average levels of R&D experience significantly negative long-run abnormal returns (Panel C). We further examine the abnormal long-run performance for sample firms with high (Panel D) and low (Panel E) levels of advertisement expenses. In general, the abnormal returns for both subgroups are not significantly different from zero.[6] These results, especially when considering R&D, provide support for Hypothesis 3 since U.S. bidder firms with high levels of intangible assets do not experience negative long-run stock performance. When we sort the sample by cultural distance, we find that firms that acquire targets in countries with great cultural differences experience significantly negative abnormal returns (Panel F), while firms that focus on targets from similar cultural backgrounds experience no abnormal long-run returns (Panel G).

Next we examine the joint effects of intangibles intensity and cultural distance in the long-run performance analysis. Firms with low levels of R&D only experience significantly negative abnormal returns in Year 1 when cultural distance is low (Panel H), but they experience significantly negative abnormal returns in Years 3 and 5 after the initial announcement when cultural distance is great (Panel I). Consistent with our earlier findings, these results suggest that acquirers with low internalization potential have difficulty creating value in takeovers in culturally distant countries. Firms with high levels of R&D experience normal long-run returns, no matter whether cultural distance is low (Panel J) or high (Panel K).

We also examine the interaction between levels of advertisement expenses with levels of cultural distance. We find that bidder firms with below industry-average levels of advertisement expenses have no abnormal returns if they acquire in culturally similar target countries (Panel L), but there is some evidence for negative abnormal returns in Years 3 and 5 if the cultural distance is high (Panel M). The results for bidder firms with high levels of advertisement expenses are similar. There is no abnormal long-run return if these firms acquire in countries with low cultural differences (Panel N), but firms that acquire in countries with great cultural distance experience negative abnormal returns in years 1, 3, and 5 after the announcement (Panel O). To summarize the results in Table 1.8, we find that firms with high levels of R&D experience normal returns in the first 5 years after the cross-border acquisition announcement, regardless of the level of cultural distance. However, bidders with low levels of R&D who acquire targets in culturally distant countries experience significant negative long-run monthly returns in the 5 years following the merger. The results also suggest that firms with high levels of

advertisement expenses are more sensitive to cultural distance. Overall, these findings provide support for the internalization theory and the value of intangibles in the form of R&D in cross-border mergers.

1.5.3.2. Operating Performance

Table 1.9 shows the results of the long-run study using abnormal operating performance as the dependent variable. Similar to Fee and Thomas (2004), we divide cash flows by sales to obtain a company's operating performance, and we subtract from it the average industry operating performance. We compute these values for each of the first three years following the cross-border M&A announcements. As before, we center the variables for R&D, advertisement expenses, and cultural distance by subtracting the sample mean from every observation to allow for easier interpretation of the regression results that include interaction terms. In Model 1 we find that level of R&D, given average cultural distance, impacts operating performance negatively in all years with significance at the 1 percent level. This relationship persists therefore in the short-run as well as in the long-run. The finding suggests that internalization of technological know-how is either challenging or more expensive than other forms of conducting international business if there is an average cultural distance between the bidder and the target countries. In line with the short-run results, cultural distance and the interaction term between cultural distance and R&D impact the operating performance negatively in the first year after the announcement. However, the results are not statistically significant. Even more interesting are the results for Years 2 and 3 after the announcement, where these coefficients change signs. Firms with average levels of R&D and advertisement expenses eventually begin to benefit from greater cultural distance, which is in line with findings by Morosini et al. (1998). The results are statistically significant at the 5 percent and 1 percent level in Years 2 and 3, respectively. The positive sign of the interaction term between cultural distance and R&D suggests that firms with high levels of R&D also begin to benefit from internalizing their intangible assets in countries with different norms and values. The coefficients are highly significant at the 1 percent level both in Year 2 and Year 3. Similar to the short-run analysis, advertisement expense does not have much impact on the abnormal operating performance, although the coefficient also changes its sign from negative in Year 1 to positive in Year 2 and Year 3. The coefficient is marginally significant at the 10 percent level in year 2. This finding provides some evidence that it requires strong marketing expertise to adapt to large cultural differences (Hypothesis 5b).

In Model 2 we find that our results generally remain significant even after controlling for the most common additional explanatory variables. Based on these results we find evidence supportive of Hypothesis 4a, suggesting that it is beneficial in the long-run to internalize technological know-how between culturally different countries. The findings on internalizing marketing expertise provide some support for Hypothesis 4a, suggesting that it requires strong marketing expertise to successfully implement this intangible asset in countries with different national cultures.

1.5.4. Robustness Checks for the Long-Run

Similar to the short-run regressions, we use robust standard errors with the long-run regression as well. Table 1.10 shows additional robustness tests that were also conducted for the short-run. In Model 1 we control for firms that had previous announcements in our sample. The sign associated with the control variable is now positive and mostly insignificant. All other previously reported long-run results still hold. In Model 2 we control for differences between income levels in the U.S. and the target country. By including this control variable we want to ensure that our findings are truly impacted by culture and not by income levels. Model 2 shows that gross national product does not alter our previous long-run results. We perform the same additional robustness checks in the long-run as we did in the short-run (i.e., control for previous bidder experience overseas, in the target country, and in the geographic area of the target country, as well as for tech-bubble, recession verses expansion, and relative size), and our main results remain consistent. Again, we run all models excluding countries and years for which the univariate analysis showed significantly positive cumulative abnormal returns, and the regression results do not change. These robustness checks lend further support to Hypotheses 4a and 5a, suggesting that firms benefit from internalizing intangible assets among countries with cultural differences.

1.6. Conclusions

In this study, we examine the impact of national culture on internalization benefits in cross-border mergers and acquisitions. Our sample consists of 468 U.S. bidder companies that acquired non-U.S. target firms between 1987 and 2004. Our findings differ for the short-run and the long-run. At the announcement, the results suggest that investors are concerned about U.S. bidders incorporating target firms from countries with large cultural differences. We further suggest that the perceived difficulties outweigh any potential benefits from internalizing technological know-how in the foreign market. The bidder firm's marketing expertise does not receive much attention during the announcement which is consistent with previous research (Morck and Yeung (1992)).

In the first year after the announcement, the operating performance simulates much of the short-run results, however without statistical significance. A noticeable change occurs in Year 2 and Year 3 after the announcement. Firms with large levels of intangible assets, both technological know-how and, to a lesser extent, marketing expertise, begin to significantly benefit from internalization in countries with great cultural differences. Our results thereby add to the literature by providing long-run support for the internalization theory and by highlighting the importance of cultural differences when examining internalization benefits. A rational explanation for our findings is that it might be less costly for firms to expand intangible assets into a foreign market through acquisition rather than through contracting as cultural differences between bidder and target country increase. We find additional long-run support for the internalization theory when looking at the abnormal stock performance one, three, and five years after the cross-border acquisition announcement.

Investors and managers alike can profit from the empirical evidence that possessing high levels of intangibles alone does not guarantee positive internalization benefits. More specifically, our results suggest that long-term internalization benefits are larger when cultural distance is high.

1.7. Future Research

Future research may extend the current findings by expanding the bidder firm sample to bidder firms from non-US countries. The increased bidder sample will provide a more generalizable conclusion of the results. It is also interesting to compare the combined operating performance of bidder and target firms prior to and after the cross-border M&A. Furthermore, examining the factors that influence the likelihood of making an acquisition in a culturally similar versus culturally different country would provide additional insights on the types of bidders that make different types of cross-border acquisitions. Lastly, it would be useful to include bidder firm CEOs' nationality and education location in the regression analyses to control for firms that possess better insights into the foreign culture of the target country. It seems reasonable to assume that foreign CEOs such as Roberto Goizueta (The Coca Cola Company, 1980 through 1998, originally form Cuba) and Eckhard Pfeiffer (Compaq, 1991 through 1998, originally from Germany) can lend more guidance to the successful integration of a target country in a culture similar to their home culture.

1.8. Notes

1 Hofstede's IBM-based scores from around 1970 have been extensively validated against more recent survey data (see Hofstede, 2001, Appendix 6). It is important to realize that the scores indicate the relative position of countries on the values scales; their absolute value has no meaning. Hofstede firmly believes that differences between national cultures are stable through time. Specifically, he states that "[i]nfluences like those of new technologies tend to affect all countries without necessarily changing their relative position or ranking; if their cultures change, they change in formation." (Hofstede, 2001, p. 36). Estimated values of scores for countries not in the original research (e.g. Russia) are based on replications and extensions of the IBM study (Hofstede, 2001, p. 502).

2 Kogut and Singh (1988) point out that although this particular measure creates weights related to the index variance, there should be no theoretical correlation between any possible measurement errors and other independent variables.

3 Kromrey and Foster-Johnson (1998) point out that mean centering does not alter the general interpretation of the regression results.

4 We loose about 30 observations due to data unavailability and the exclusion of 14 observations where the target country has the higher gross national income level. This is true for Switzerland, Norway, and Japan. Alternatively, we use all observations for the difference in gross national income by including absolute values to avoid netting out of positive and negative values. This method does not alter the results.

5 Recessions occurred from July 1990 through March 1991, and from March 2001 through November 2001. All other time periods were expansions.

6 Only the 1 year abnormal return is negative, significant at the 10 percent level, for equally-weighted portfolios when the level of advertisement expenses is high.

Chapter 2

Implications of Early Versus Late-Mover Status for Bidders and Their Rivals in Cross-Border Acquisitions

2.1. Introduction

According to the first-mover advantage hypothesis, firms that possess information advantages to pioneer new investment avenues can earn significant positive abnormal returns if they are among the first to exploit these new avenues. In particular, firms that own rare, valuable, and difficult-to-imitate resources can exploit supernormal profits (Oliver (1997)), especially if these firms establish competitive advantages before their peers do (Lieberman and Montgomery (1988)). If competitive strategies are present, then early-movers typically perform better than later followers (Lee, Smith, Grimm and Schomburg (2000)). Recent empirical evidence suggests that this early-mover advantage can also explain the superior performance of strategic target acquisitions within the same industry at the beginning of a merger wave compared to later target acquisitions, and compared to acquisitions outside a merger wave (Carow, Heron and Saxton (2004)). While, on average, bidder firms do not earn significant positive abnormal returns upon the announcement of a domestic merger (Jensen and Ruback (1983); and Mulherin and Boone (2000)), early-movers in strategic acquisitions (Carow et al. (2004)) and unexpected merger announcements (Song and Walkling (2005)) can earn significant positive abnormal returns for bidder firms' shareholders. Early movers enjoy a wider spectrum of potentially profitable target acquisitions from which to choose, whereas later acquirers generally face greater competition over fewer targets (Carow et al. (2004)), which consequently increases the acquisition premia and makes the acquisitions less profitable or potentially even unprofitable.

Prior studies examining acquirer returns in foreign acquisitions have generally found that bidder firm shareholders lose in these takeovers. For example, Moeller and Schlingemann (2005) compare domestic and foreign acquisitions from 1985 through 1995 and find that event period abnormal returns for acquirers of foreign targets are significantly lower than those for acquirers of domestic targets. Similarly, Eckbo and Thorburn (2000) also find evidence of lower event period abnormal returns for foreign acquirers of Canadian targets than for domestic acquirers. Furthermore, André, Kooli, and L'Her (2004) find that Canadian bidders perform poorly in cross-border deals in the long-run, and Conn, Cosh, Guest, and Hughes (2005) find similar poor performance for UK acquirers in foreign takeovers of public targets.

In addition to prior studies finding that the average bidder does not fare well in cross-border mergers, the finance literature also documents that certain types of bidders may

experience positive bidder firm announcement returns for cross-border acquisitions (e.g., Doukos and Travlos (1988); Morck and Yeung (1992); Markides and Ittner (1994); and Chakrabarti, Jayaraman and Mukherjee (2008)). For example, acquirer gains appear to be positively related to advertising intensity, target size, oligopolistic industries, U.S. dollar strength, and previous international experience (Markides and Ittner (1994)). In addition, Morck and Yeung (1992) find a positive relation between wealth increase upon a cross-border M&A and the bidder firm's level of intangible assets. The possible wealth effect to bidder firm shareholders can, in part, be explained by operational, strategic, and financial diversification benefits. Further, the bidder firm's return depends on whether the target firm operates in a related industry, the concentration level of the bidder firm's industry, the bidder firm's relative advertisement spending, the bidder firm's international experience, and the bidder firm's profitability at the time of the M&A (Markides and Ittner (1994)). Although previous studies have identified a number of factors that influence the bidder firm shareholders' wealth gains in cross-border mergers, the strategic implications of early-mover acquisitions have not been specifically explored.

The purpose of this study is to explain abnormal bidder firms' returns in cross-border M&As by comparing the first-mover hypothesis to the late-mover hypothesis. While Carow et al. (2004) successfully establish pioneering advantages for early-movers in domestic acquisitions, we are not aware of any study to date that looks at timing advantages in cross-border acquisitions. In addition to studying the differences in wealth gains of early-movers compared to late-movers, this study also focuses on the reaction of bidder rival firms to the merger announcement as a further test of the first-mover hypothesis. Song and Walkling (2005) examine rival firms' reactions with a sample consisting primarily of domestic target firms and only a minority percentage of foreign target firms. Their study neither highlights the benefits of acquiring foreign targets nor addresses country differences.

The result of this research reveals the market's perception about internalization benefits at various stages of a merger wave. Specifically, this research attempts to indicate at which stage of a merger wave it is advantageous to internalize intangibles and if differences in national culture impact announcement returns.

The remainder of this paper is organized as follows: Section 2 reviews the early-mover and intra-industry literature, Section 3 introduces the proposed hypotheses, Section 4 discusses the research methodology and the data that are utilized to test the proposed hypotheses, Section 5 presents the empirical results, Section 6 states the study's conclusions, and Section 7 ends with future research opportunities.

2.2. Literature Review

2.2.1. First-Movers and Late-Entrants

First-mover advantages arise when a firm materializes positive net present value gains by entering a new market before anybody else does. Research shows that "technological leadership," "preemption of scarce assets," and "switching costs" are likely sources that create first-mover advantages (Lieberman and Montgomery (1988)).

Firms can achieve "technological leadership" by investing in research and development (R&D) that result in patented know-how or organizational innovations. If industry competitors cannot afford to allocate similar funds to the development of technology, they might be blocked from entering the new market. Such barriers to entry increase the time period where the first-mover is in the lead before the first rivals begin to follow (Kerin, Varadarajan, and Peterson (1992)). "Preemption of assets" refers to taking possession of available assets, such as valuable target firms, before anybody else does. When a U.S. firm acquires a non-U.S. target, for example, the first-mover enjoys the widest variety of targets to choose from and can select the most valuable target firm (Carow et al. (2004)). On the other hand, later entrants are limited to the remaining targets, which might not provide any positive net present value projects. Early-movers can also take advantage of other assets, such as the local work force, suppliers, and distributors (Lieberman and Montgomery (1988)). Finally, late-entrants might face "switching costs," which are the costs associated with attracting customers away from early-movers that have already established relationships. This cost barrier to late-entrants further benefits the early-movers by allowing them initially to enjoy profits that they do not have to share with competitors. If late-entrants are unable to divert a significant number of customers form the early-mover, switching costs are a lasting benefit to early-movers. For example, Makadok (1998) examines the money market mutual fund industry where products can be easily imitated, yet early-movers were able to maintain a leading status because they had already secured access to their customer base.

Kerin et al. (1992) and Carow et al. (2004) point out that being a first-mover alone, on average, does not provide any abnormal returns. Only "strategic pioneers," which are firms that possess proprietary information, earn abnormal returns. In addition, first-movers are more likely to experience superior stock performance if they acquire targets in related industries, pay for the transaction in cash, and purchase during expansionary time periods in the targeted industry (Carow et al. (2004)).

Although firms typically benefit from being first- and early-movers, there are exceptions where it is desirable to wait and enter the new market at a later point. For example, late-entrants might be able to save innovation costs by free-riding on first- and early-movers' investments in areas such as R&D, buyer education, and infrastructure (Lieberman and Montgomery (1988)), and by imitating products or processes rather than originally designing them (Shankar, Carpenter, and Krishnamurti (1998)). For example, Texas Instruments gained market dominance in the hand-held calculator industry by producing at a lower cost than the pioneers Bowmar Brain and Canon Pocketronic (Schnaars (1986)). Therefore, if firms can save expensive innovation expenses and easily enter new markets via product imitation, the pioneers might not have enough lead time to fully recoup their initial expenses and to secure a loyal customer, employee, and supplier source. The reduction of the pioneers' benefits in this case reduces the incentive of becoming a first-mover (Lieberman and Montgomery (1988)).

Entering the market at a later time might also provide additional benefits of decreased market and technology uncertainty (Lieberman and Montgomery (1988)), possibilities to enhance existing processes and products to meet changing customer needs (Scherer (1980)), and to innovate by utilizing resources and expertise more efficiently to surpass early-movers (Lieberman and Montgomery (1998); and Shankar et al. (1998)). For

example, Matsushita gained a leading position in the product market as a later entrant by designing a superior videocassette recorder at lower cost than the pioneer Sony did (Schnaars (1986)).

2.2.2. Intra-Industry Effects

Cross-border M&A announcements might not only impact the announcing firm's stock price, but also the industry rival firms' stock prices. Previous research has found numerous examples of contagion and competitive effects in rival firms when the announcement seemed to convey more than only firm-specific information. For example, Lang and Stulz (1992) examine the impact of bankruptcy announcements and find both a contagion and a competitive effect in rival firms. The contagion effect can stem from heightened customer and supplier concerns about the future health of all firms within the industry that announced the bankruptcy and expected lower industry-specific cash flows in the future. Highly leveraged firms seem to be effected more severely by this contagion effect. On the other hand, highly concentrated industries – that is, industries with a low number of competitors - with low leverage enjoy positive value effects.

Intra-industry research of takeovers shows that rival firms of targets earn positive announcement returns regardless of the M&A's final success, and regardless of whether the M&A is horizontal or vertical (Song and Walking (2000)). Furthermore, other research reports positive valuation effects for rival firms upon horizontal merger announcements in the mining and manufacturing industry (Eckbo, 1983). Shahrur (2005) utilizes firms from the SDC database during 1987 and 1999 and confirms this result. When focusing on merger announcements in the insurance industry, studies show that industry rival firms react positively to merger announcements. The magnitude of the intra-industry effect depends on the firm characteristics such as location, type and size (Akhigbe and Madura (2001)). Specifically, rival firms earn significantly positive announcement returns when they are located in the same regional area as the bidder firm, and if the target firm carries only one type of insurance, especially if it is a life insurance (Akhigbe and Madura (2001)). Lastly, rival firms earn greater positive announcement returns if their size is similar to the size of the bidder firm (Akhigbe and Madura (2001)).

Although there is a significant amount of research available on intra-industry effects of different announcements in general and mergers and acquisitions in particular, Song and Walking (2005) note that the research on bidder firms' rivals is scarce. They argue that these rival firms' responses are hard to measure because bidder firms' returns are typically very small. While this is true for domestic and cross-border mergers in general, certain cross-border M&As promise greater bidder firm announcement effects. For example, bidder firms that possess intangible assets earn positive announcement returns (Morck and Yeung (1991, 1992)). In addition, the domestic first-mover literature suggests that announcements by strategic pioneers are value increasing (Carow et al. (2004)). If bidder firms observe significant announcement returns, these returns could send a signal and impact all firms within the industry or firms that will subsequently become bidder firms themselves (Song and Walking (2005)). In fact, Song and Walkling (2005) find that rival firms' stock prices adjust upon M&A announcements. Moreover, rival firms that are expected to become subsequent bidder firms adjust their wealth in

proportion to the level of the bidder firm's announcement return. These returns are significantly different from rival firms that are not expected to become subsequent bidder firms. This result suggests that bidder firms' rivals display a contagion effect. While the authors include international acquisitions in their sample, their study focuses neither on the benefits of acquiring foreign targets nor on country differences. Our study fills this existing gap by addressing the effects of cross-border acquisitions on bidder rivals. We specifically examine the importance of acquisition timing, as an early versus late-mover, and the role of cultural differences in affecting the shareholder wealth gains for the bidder firms and their rivals within the same industry.

2.3. Hypotheses

If the first-mover advantage hypothesis can be utilized to explain observed abnormal bidder returns upon the announcement of foreign-target acquisitions, we should expect that early acquisitions create more profitable bidder firm returns than subsequent acquisitions. However, being a first-mover alone might not provide abnormal returns (Kerin et al. (1992); and Carow et al. (2004)). To earn abnormal announcement returns, the authors suggest that the bidder firms need to be classified as "strategic pioneers," which are first-movers that possess proprietary information. In addition, acquisitions between firms in related industries, expanding bidder industries, and cash payments qualify as a strategic bidder decision, where firms acquire early because they have superior information compared to firms that acquire early without any competitive advantage (Servaes (1991); Maquieira, Megginson and Nail (1998); and Carow et al. (2004)). Furthermore, Song and Walkling (2005) note that first-mover advantages are more likely to be observed in horizontal and vertical mergers rather than in unrelated mergers. Following these arguments, strategic pioneers should earn positive abnormal announcement returns in horizontal cross-border M&As. If the first-mover advantage hypothesis holds in cross-border acquisitions, we expect that strategic pioneers earn significantly higher announcement returns than late-movers and early-movers without comparative advantages.

> *Hypothesis 1a: Strategic pioneers will realize more favorable announcement returns than late-movers if early-mover advantages exist.*

On the other hand, we might observe late-mover advantages (Shankar et al. (1998)) if firms can benefit from early-movers' groundwork and their potential mistakes when entering the foreign market (Luo (1998)). Specifically, early-movers have to invest in educating the foreign government and customers, and in establishing necessary infrastructure. If later entrants can save much of these cost disadvantages (Dewenter (1995)) and either inexpensively imitate early-movers' technology (Shankar et al. (1998)) or use their own R&D to surpass existing technology (Lieberman and Montgomery (1998) and Shankar et al. (1998)), we expect that later acquisitions are more value-enhancing than early acquisitions. If early-movers cannot recover their initial expenses

and/or later entrants obtain sufficient market share, early acquisitions may be value destroying.

> *Hypothesis 1b: Late-movers will realize more favorable announcement returns than strategic pioneers if late-mover advantages exist.*

In addition to bidder returns in general, the aspect of cultural distance has received increased attention in recent years with respect to explaining abnormal returns in cross-border M&As (Stulz and Wiliamson (2003); Chakrabarti et al. (2008)). The psychologist Geert Hofstede was among the first to study differences in national cultures when working for IBM and conducting surveys with more than 100,000 IBM employees from subsidiaries in more than 50 countries between 1967 and 1973. From these surveys, Hofstede developed cultural dimensions that allow us to measure how similar different national cultures are (Hofstede (1980)).[1] Studies that utilize Hofstede's cultural dimensions find mixed evidence pertaining to the impact of cultural distance on the performance of cross-border acquisitions. On the one hand, research suggests that a greater cultural difference between two countries increases acquisitions costs and creates negative wealth effects for the bidder firm's shareholders (Datta and Puia (1995)). On the other hand, studies show positive relations between bidder firms' wealth effects and cultural distance, possibly due to the acquisition of new routines and repertoires (Morosini, Shane and Singh (1998)) and less integration problems if the target remains autonomous (Chakrabari et al. (2005)).

To develop some prediction for the effect of cultural distance on early-movers' announcement returns, we focus on early-movers with technological leadership. Technological leadership is mentioned as a possible source of the proprietary information that a strategic pioneer possesses, and it is measured by the level of research and development (R&D) associated with the bidder firm (Lieberman and Montgomery (1988)). Following the logic of Morck and Yeung's (1991, 1992) internalization theory, pioneers with high levels of technological know-how might wish to internalize markets for their intangible assets by acquiring a foreign target firm. The impact of culture on the internalization benefit for pioneers with technological know-how can be twofold. We might observe a positive relationship between cultural distance and the pioneer's announcement return if it is beneficial to internalize the intangible assets between culturally different countries. This is plausible if contracting (e.g. licensing and franchising) is less expensive in culturally similar climates. If this is true, an increasing difference between two countries' cultures is likely to make contracting more costly and the purchase of a foreign company more attractive. The pioneer's announcement return could therefore increase with cultural distance.

> *Hypothesis 2a: Cultural distance between target and bidder countries should positively affect the announcement return for strategic pioneers with high levels of technological know-how due to the benefits of internalization of intangible assets.*

On the other hand, if the early-mover owns technological know-how that it wishes to internalize among more than only the domestic market, it is reasonable to assume that pioneer and target firm have to work together closely and integrate the target firm successfully. Because countries cultivate organization styles and administration routines based on their national culture (Kogut and Singh (1988)), integration would be much easier to accomplish if bidder firm and target firm share similar norms and values. Following this rationale, Datta and Puia (1995) imply that less cultural distance eases post-acquisition integration of the target firm. Thus, we could also observe a negative relation between cultural distance and pioneer announcement effects.

> *Hypothesis 2b: Cultural distance between target and bidder countries should negatively affect the announcement return for early-movers with high levels of technological know-how if the cost of post-acquisition integration of the target firm outweighs internalization benefits.*

In addition to examining the bidder firm announcement returns, we also study the bidder firms' rivals and their stock price responses to the cross-border M&A announcements. Rival firms might experience positive announcement effects during early-mover acquisitions for two reasons. If the market believes that strategic cross-border acquisitions are value-enhancing for early-movers, such cross-border announcements could signal information about the value of industry rivals (see Song and Walkling (2005)). According to the first-mover hypothesis, strategic early-movers should earn higher abnormal announcement returns than firms that subsequently follow and imitate the move at a later time. If the initial announcement of a strategic acquisition signals good news to the market and if there are still other positive net present value (NPV) targets available in the new market place, we expect that firms with similar characteristics as the initial bidder experience positive abnormal returns at the initial bidder firm's announcement. However, as time passes and fewer profitable target firms remain available, we expect to observe non-positive rival responses to later bidder announcements.

> *Hypothesis 3a: Rival firms earn positive CARs during early-mover announcements if early-mover advantages exist and if it is beneficial to become a subsequent early bidder.*

> *Hypothesis 3b: Rival firms earn non-positive CARs during follower and late-mover announcements if early-mover advantages exist and if it is beneficial to become a subsequent early bidder.*

A second opportunity for rivals to experience positive returns at early-movers' acquisition announcements is possible if the perceived cost disadvantages to early-movers outweigh internalization benefits initially. Once the foreign market has become accustomed to U.S. firms and if barriers to entry are not too high, rivals of early-mover bidders are likely to materialize value-creating opportunities. However, as more competition enters the foreign market successfully, barriers of entry are likely to rise for

subsequent bidders because lucrative target firms as well as suppliers and customers become scarce. Once acquisitions in the target country are no longer value-enhancing, we expect that rivals experience non-positive CARs during the announcement of the bidder firm.

Hypothesis 3c: Rival firms earn positive CARs during early-mover announcements if late-mover advantages exist and if it is beneficial to wait and learn from early-movers' mistakes.

Hypothesis 3d: Rival firms earn non-positive CARs during follower and late-mover announcements if late-mover advantages exist and followers and late-movers are able to establish barriers to entry.

Although we might observe positive rival firm reactions during early-mover announcements under the above stated conditions, it is also possible to observe negative rival responses during early-mover announcements. For example, if strategic cross-border acquisitions are value-enhancing for early-movers and barriers to entry can be established immediately, rivals should earn non-positive CARs at the early-movers' acquisition announcement.

Hypothesis 3e: Rival firms earn non-positive CARs during early-mover announcements if early-mover advantages exist and if early-movers can establish barriers to entry immediately.

We might further find non-positive rival reactions to early-mover announcements if early market entry causes value destruction in cross-border M&As, and if investors are concerned that rivals are likely to follow the early-mover while cost-disadvantages still outweigh any internalization benefits.

Hypothesis 3f: Rival firms earn non-positive CARs during early-mover announcements if late-mover advantages exist and if investors anticipate rivals of early-movers to engage in equally value-destroying activities as the early-movers themselves.

2.4. Data and Methodology

2.4.1. Sample Description

We used the Securities Data Company's (SDC) Mergers and Acquisitions database to identify an initial sample of 7,499 completed horizontal cross-border takeovers announced by publicly traded U.S. bidder firms from 1987 through 2004. The takeovers reflect majority stake acquisitions or 100 percent purchases of the target firm. Also, bidder and target firms share the same 4-digit primary Standard Industrial Classification (SIC) code. To remain in the sample, the announcement must meet the following criteria:

1. The announcement date could be determined using the *Wall Street Journal* or the Lexis-Nexis News Wire file.
2. Appropriate stock and firm information is available on the Center for Research and Security Prices (CRSP) files and the Compustat database.
3. Following André, Kooli and L'Her (2004) and others, the transaction value must be at least US$ 10 million.
4. Similar to Fee and Thomas (2004), announcements from public utility firms (SIC code 4900-4999) and financial institutions (SIC code 6000-6999) are excluded from the sample because of these firms' extensive regulations.

This screening procedure produced a sample size of 1,621 announcements. We further grouped these announcements by target country and industry, using the Fama French 12 industry classification system. Each country/industry group must have at least five announcements to determine early-movers (first 20 percent of the group), late-movers (last 20 percent of the group), and followers (middle 60 percent of the group), following Carrow et al. (2004).[2] The final sample consists of 173 completed cross-border acquisitions by publicly traded U.S. firms that announced transactions from January 1987 through December 2004.

Rival firms consist of members of the individual country/industry sample groups as well as externally matched rival firms. Similar to Barber and Lyon, (1996), Loughran and Ritter (1997), and Fee and Thomas (2004), we identified external rival firms based on industry, size, and operating performance. Specifically, we identified firms that had relevant information available on CRSP and Compustat but that were not part of our announcement firm sample. We first matched announcing firms with rival firms that shared the same 4-digit SIC code and had total assets between 25% and 200% of the sample firms' total assets in the year prior to the announcement. Of the matching rival firms, we selected the one with the closest operating performance relative to the sample firms, measured in the year prior to the announcement.[3] We divided cash flows by sales to obtain the operating performance measure (see Fee and Thomas (2004)). We relaxed the criteria if we could not find a rival firm. First, we allowed for matches by 2-digit SIC code, size, and operating performance, then we matched by 2-digit SIC code and operating performance, and finally we matched by 1-digit SIC code and operating performance.

Table 2.1 explains the variables used in the paper's analyses. Table 2.2 describes the distribution of the cross-border M&A announcements by year. Complete information was available on 173 announcements between 1987 and 2004. The vast majority (almost 90 percent) of announcements took place in 1993 and thereafter, which is the time frame that Black (2000) calls the "international merger wave." The frequency of annual cross-border acquisitions for our sample increased in 1995 with peaks in 1997 (12.72 percent of the total sample announcements), 1999 (15.03 percent of the total sample announcements), and 2004 (12.72 percent of the total sample announcements).

Table 2.3 provides descriptive statistics for the announcing bidder firms (Panel A) and their industry rivals (Panels B through D). Research and development expenses are higher for the announcing firms (US$ 299 million) compared to rival firms, especially compared to externally matched rival firms (US$ 180 million). In general, announcing

firms and rival firms appear to have similar characteristics, even after considering within sample matches and external matches.

2.4.2. Strategic Pioneers

It is well known that M&As occur in waves (see Brealey and Myers (2003); and Moeller, Schlingemann and Stulz (2005)), and so far literature has classified five distinct mergers waves: first wave, 1895 to 1903; second wave, 1920 to 1929; third wave, 1960 to 1973; fourth wave, 1978 to 1989; and fifth wave, 1993 to present (Black (2000)). Since this fifth merger wave includes a significant percentage of cross-border M&As, Black (2000) classifies it as the first international merger wave. The vast majority of our sample falls within Black's timeframe for the international merger wave. Following the approach by Carow et al. (2004), we classify the earliest 20 percent of acquisitions in our industry/country sample groups as early-movers, the latest 20 percent as late-movers, and the remaining 60 percent as followers. Among the early-movers, we differentiate between strategic pioneers and other early-movers. Kerin et al. (1992) and Carow et al. (2004) point out that being a first-mover alone might not provide abnormal returns. Rather, it might be important for early-movers to possess proprietary information. One prominent area of proprietary information is technological know-how, and we classify early-movers with above industry-average levels of technological leadership, as proxied by R&D expenses relative to annual sales in the year prior to the cross-border acquisition announcement, as strategic pioneers. R&D expenses and annual sales are obtained from Compustat.

2.4.3. Announcement Effects

We utilize standard event study methodology to obtain both the bidder firms' and rival firms' announcement returns at the time of the bidder firm's announcement. This model estimates the abnormal return for Security i on Day t, AR_{it}, by subtracting the security's expected return, $E(R_{it})$, from the actual return, R_{it}. The expected return is computed using Fama's (1976) market model.

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} \qquad (1)$$

$$AR_{it} = R_{it} - E(R_{it}) \qquad (2)$$

The estimated parameters α_i and β_i in Equation (1) are computed using an OLS regression of security returns, R_{it}, with market returns, R_{mt}, during the estimation period, where R_{mt} is the return on the CRSP value-weighted index to proxy for the market index on Day t. The estimation period used in the OLS regression spans from Day -300 to Day -50, where Day 0 denotes the event day – that is, the day on which the cross-border M&A is announced. For more reliable coefficient estimates, we include only firms that have at least 100 days worth of return data available.

2.4.4. Cultural Distance

For hypotheses 2a and 2b, we perform a cross-sectional regression to test whether the abnormal stock returns of early-movers with significant technological know-how are related to Hofstede's (1980) cultural distance measures. Following Kogut and Singh (1988), we combine Hofstede's four most common cultural dimensions, which are individualism (IDV), uncertainty avoidance (UAI), power distance (PDI), and masculinity (MAS), into the following composite index distance measure:

$$\text{Hofstede's Cultural Distance Measure} = \frac{\sum_{i=1}^{4}\left(\frac{(S_{B,i} - S_{T,i})^2}{V_i}\right)}{4}$$

where $S_{B,i}$ is the bidder country score for Dimension i, $S_{T,i}$ is the target country score for Dimension i, and V_i is the variance of the index score of Dimension i.[4] When we divide our results for the cultural distance measure into high and low cultural distance between the target country and the United States, our grouping corresponds with that of Benou, Gleason, and Madura (2007) who categorize cultural distance using hierarchical cluster analysis.

2.4.5. Intra-Industry Effects

To test hypotheses 3a through 3f, we identify rival firms by matching our sample bidder firms with firms from the Compustat database that share the same 4-digit SIC code. Because rival firms might react differently to cross-border M&A announcements depending whether the rival is already invested in the target country, we differentiate between rival firms that are already invested in the target country or its geographic area (Prior = 1) and rival firms that are not (Prior = 0).[5]

Rival firms' stock price reactions are measured around the event dates that are examined for cross-border bidder firms.

2.4.6. Control Variables

Following the previous literature, we control for the most commonly used variables in the cross-sectional regressions of this study. Specifically, we control for the following variables: [6]

Cash — Takes the value of one if the transaction is completely financed by cash payment, and zero otherwise. We typically observe positive relations between cash payments and wealth gains to both bidder and target firms (see for example Harris and Ravenscraft (1991)). The method of payment information is obtained from the SDC database.

Prior	Takes the value of one if the bidder firm has any previous involvement in the target country or its geographic area[7] at the time of the cross-border M&A announcement, and zero otherwise. This information is obtained from the Directory of Corporate Affiliations.
RPrior	*T*akes the value of one if the rival firm has any previous involvement in he target country or its geographic area at the time of the cross-border M&A announcement, and zero otherwise. This information is obtained from the Directory of Corporate Affiliations.
Exrate	Indicates the relative strength of the target country's currency with respect to the U.S. dollar. The strength of the home currency versus the foreign currency can impact the cost of the cross-border M&A transaction (see for example Kiymaz and Mukherjee (2000)). Similar to Harris and Ravenscraft (1991), we calculate the strength of the target currency with respect to the U.S. currency by subtracting the average exchange rate (in terms of U.S. dollar) in the announcement year from the average exchange rate (in terms of U.S. dollar) during the sample period and dividing the result by the average exchange rate during the sample period. Positive results indicate that the foreign currency was stronger during the announcement year than during the average sample period, while negative results point to the opposite. The exchange rate data are obtained from the Federal Reserve Bank.
BProfit	Indicates the bidder firm's profitability in the year prior to the cross-border M&A announcement, and is calculated by dividing the bidder's annual income by its total assets. This information is found on Compustat.
RProfit	Indicates the rival firm's profitability in the year prior to the cross-border M&A announcement, and is calculated by dividing the rival firm's annual income by its total assets. This information is found on Compustat.
RelSize	Indicates the transaction value of the acquisition divided by the natural logarithm of the announcing firm's total assets in the year prior to the announcement.
Expansion	Takes the value of one if the announcement took place during an expansionary economy and zero otherwise.[8]

2.5. Results

2.5.1. Univariate Analysis

2.5.1.1. Bidder Firms

In Table 2.4 we report the mean and median cumulative abnormal returns (CARs) for our sample of announcing firms during the 2-day (0,+1) and 3-day (-1,+1) time windows surrounding the announcement date. Panel A shows that the 3-day mean and median cumulative abnormal returns for our entire bidder sample are -0.68% and -0.31%, respectively. However, the CARs are not statistically significant. This result is consistent with Bruner's (2004) survey of previous cross-border M&A research. He found that, on average, the announcement effect to US bidder firms is not significant. By breaking down the mean and median CARs by type of announcing firm, we find that early-movers have a negative mean CAR and a significantly negative median CAR. Further, mean and median CARs are negative for followers and positive for late-movers. The non-significant mean CAR for early-movers is consistent with the research by Kerin et al. (1992) and Carow et al. (2004) who propose that being a first-mover alone does not provide abnormal returns. Instead, the authors suggest, early-movers must possess proprietary information to earn abnormal returns. Early-movers with proprietary information are called strategic pioneers. Our early-movers qualify as strategic pioneers if they possess proprietary information resulting from R&D investments. Specifically, in the year prior to the announcement our strategic pioneers spend more money on research and development (R&D) than the industry average.

According to Hypothesis 1a, if the early-mover advantage hypothesis holds in cross-border acquisitions, we expect to find positive mean CARs for early-movers, and strategic pioneers in particular. However, we show that mean CARs for early-movers and strategic pioneers are negative and not significant. In Hypothesis 1b we postulate that late-movers should have positive mean CARs if the late-mover advantage hypothesis holds in cross-border acquisitions. In fact, we find positive mean CARs for late-movers during the announcement period, though the results are not statistically significant.

Although the individual CARs for early-movers, followers, and late-movers are not significant, Panel B shows that the difference in the 3-day mean CAR between early-movers and late-movers is significant at the 10 percent level. These results indicate that late-movers experience superior announcement returns compared to early-movers, which provides some support for the late-mover advantage theory (Hypothesis 1b).

In Panel C we further differentiate between late-movers with above- and below-average R&D spending. We show that only late-movers with low R&D expenses do in fact outperform early-movers, and strategic pioneers in particular. The differences in mean CARs between late-movers with high R&D expenses and strategic pioneers are not significant. Neither are the differences between late-movers with low R&D and early-movers with low R&D. Overall this analysis implies that in cross-border M&A, the announcement by a late-mover with low R&D investment results in more favorable abnormal returns than the announcement by an early-mover, especially if the early-mover invests heavily in R&D. Lieberman and Montgomery (1988) provide a reasonable explanation for this result, suggesting that late-movers might be able to free-ride on early-

movers' investments in R&D. When we examine the sub-samples of bidder firms with high and low R&D spending, we notice that only three late-movers (9 percent of the late-mover sample) and six followers (5.6 percent of the follower sample) do in fact spend heavily in R&D, compared to 12 early-movers (37.5 percent of early-mover sample). It seems reasonable to conclude that bidder firms in cross-border M&As benefit from conserving R&D expenses if they can imitate products or processes later instead of designing them themselves, consistent with Shankar, Carpenter, and Krishnamurti (1998).

Panel D indicates that the mean CAR of the strategic pioneers is not significantly different from the mean CAR of early-movers with below-average R&D expenses. Given the very small sample sizes associated with strategic pioneers, we proceed focusing on early-movers in general rather than strategic pioneers for our remaining analyses.

For Hypotheses 2a and 2b we examine our sample of bidder firms that acquire target firms in countries with great cultural distance. Specifically, we are looking at the impact of cultural distance on announcement returns. We predict that cultural distance could have either a positive (Hypothesis 2a) or a negative (Hypothesis 2b) impact on the announcement return of early-movers. In Panel E we show that in the sub-sample of bidder firms with high cultural distance, the 3-day mean CAR is negative for early-movers (-4.685%), significant at the 1 percent level, and positive (5.108%) for late-movers, significant at the 10 percent level.[9] The mean CAR for followers is negative but not significant. The difference in the 3-day mean CARs between early-movers and late-movers is highly significant at the 1 percent level (t = -4.24). In addition, the differences in the 3-day mean CARs between early-movers and followers, and late-movers and followers are significant at the 5 percent level. These results suggest that among bidder firms that choose target firms in countries with great cultural distance, only late-movers experience positive 3-day mean CARs and outperform followers as well as early-movers. Further, followers outperform early-movers. One reasonable implication of this observation is that greater differences in countries' cultures complicate the integration process of the target firm. Our results, which provide evidence in favor of Hypothesis 2b, also support findings by Datta and Puia (1995). In particular, our univariate results suggest that late-movers not only benefit from early-movers' R&D but also from their possible mistakes and challenges when operating in a culturally different country. Late-movers may study these mistakes and problems encountered by the early-movers and learn from them, thereby ultimately experiencing stronger announcement effects than the early-movers.

2.5.1.2. Rival Firms

Table 2.5 shows industry rivals' responses to announcements by bidder firms. Panel A provides cumulative abnormal returns of industry rival firms during the 2-day (0,+1) and 3-day (-1,+1) time windows around the announcement date. The 3-day cumulative abnormal mean and median returns to the rival firms are -0.348%, and -0.164%, respectively. Both values are statistically significant. More in-depth analysis shows that the significantly negative returns originate primarily from rivals of followers. Mean and median CARs for rivals of followers are statistically significant. The mean CARs of rivals of early-movers are negative while the mean CARs of rivals of late-movers are

positive. However, these results are not statistically significant. This finding parallels the results for announcing firms in Table 2.4, showing more negative CARs for early-movers than for late-movers, and it provides some evidence of a contagion effect in the bidder firm merger announcements.

Further, Panel A also provides some support for Hypothesis 3d. The previous table suggests a late-mover advantage in cross-border M&As. If followers can learn and benefit from early-movers and begin to establish barriers upon entry into the foreign country, then rivals to followers might not be able to benefit from internalization benefits themselves. We know from the previous table (Table 2.4, Panel D) that followers with high levels of R&D observe normal announcement returns. Because rivals to followers experience significantly negative announcement returns, we conclude that the market believes that innovative followers, as later market entrants, are able to successfully internalize their intangible assets and to establish barriers to entry. Innovative followers are therefore a unique subgroup of bidder firms, as they combine elements from late-mover advantage theory (by learning from early-movers) and early-mover advantage theory (by creating barriers of entry).

Panel B displays differences in means between rival firms depending on the type of bidder firm. We find that the rival response to announcements of late-movers is significantly less negative than the rival reaction to announcements of followers. Although there is no statistical difference in mean CARs between the rivals of early-movers and the rivals of late-movers, we do find differences in subsequent sub-samples when we differentiate between levels of cultural distance. Specifically, Panel C shows that if cultural distance between the U.S. and the target country is large, the response of rival firms is significantly more negative if the bidder firm is an early-mover compared to a late-mover. This result is again in line with our previous findings regarding the impact of cultural distance on bidder firms, and it provides further evidence for a contagion effect. This evidence supports Mitchell and Mulherin (1996) who note that mergers are signals of fundamental changes in conditions facing the industry. The generally negative announcing firm CAR, and the negative rival CAR, imply that the merger announcement sends an industry-wide signal that causes investors to re-evaluate other firms in the same industry. For example, rival firm investors may fear that industry conditions could lead their firms to engage in similar risky cross-border mergers that are value-destroying. This fear is more pronounced in early-mover rivals than in late-mover rivals. In general, our findings are more suggestive of a late-mover advantage rather than an early-mover advantage in cross-border M&A announcements. In addition, we have also shown that level of R&D as well as cultural distance impact announcement returns. Specifically, our results suggest that late-movers can observe and learn from early-movers' R&D and from their obstacles and mistakes encountered when entering a culturally distant country.

2.5.2. Regression Analysis

2.5.2.1. Bidder Firms

Table 2.6 presents regression results for the bidder firm sample. Specifically, we regress bidder firms' 3-day mean CAR on R&D expenses relative to total sales in the

year prior to the announcement, on the Hofstede cultural distance index, on type of bidder firm (i.e., early-mover, follower, late-mover), and on other explanatory variables.[10]

In Model 1 we focus on early-movers and their interaction with R&D and cultural distance. We find that higher spending in R&D has a significant negative impact on the announcement effects of early-movers, which implies that being a strategic mover adversely affects shareholder wealth at least at the time of the announcement. Confirming our univariate results, early-movers in our sample do not benefit from internalization benefits. This finding suggests that the benefit from possessing intangible assets does not fully compensate for the early-mover's costs of entering a foreign country. Dewenter (1995) lists several cost disadvantages which include "establishing local contacts for suppliers and distributors; learning local regulations in areas such as job safety, environmental protection and new product approval; coordinating and communicating across geographic and cultural distances; and, managing exchange rate exposure" (p.483), among others.

Model 2 shows the significantly positive impact of high R&D expenditure on followers. This finding is in line with our univariate results, where followers with high levels of R&D experienced positive mean CARs while followers with low levels of R&D experienced negative mean CARs (Table 2.4, Panel C). Followers can take advantage of observing early-movers and learning from their mistakes, and the results suggest that followers can enter the foreign market while there still are profitable targets available. As stated by Shankar et al. (1998), later entrants can outperform early-movers through superior innovation in product or strategy. Model 2 further indicates that followers with high levels of R&D encounter significantly negative wealth effects if there is a large cultural distance between the U.S. and the target country. This implies that the challenges to successfully integrate a target firm outweigh internationalization benefits for innovative followers as the cultural differences between the host and the home country widen.

Model 3 indicates that being a late-mover creates positive wealth effects during cross-border M&A announcements. The positive coefficient for being a late-mover corresponds with the positive CARs of late-movers in the univariate analysis. Luo (1998) suggests that late-movers can learn from earlier movers' mistakes and benefit from earlier movers' efforts of educating local government, suppliers, and customers. Therefore, late-movers can outperform earlier movers. The intensity of R&D spending and cultural differences does not create any wealth effects for late-movers.

The findings in Table 2.6 together with our univariate results provide further support for a late-mover advantage in cross-border acquisitions and are in line with Hypothesis 1b. We also find some additional support for Hypothesis 2b with respect to followers, indicating that followers benefit from internalization as long as the difference in cultural climate between the target and the home country is low.

In Table 2.7 we expand on the previous models by controlling for investors' legal rights as introduced by LaPorta, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998) [LLSV]. If the Hofstede index captures aspects of national culture and is not subsumed in LLSV's control variables, then our regression findings from the previous table should continue to hold. We also control for bidder firms' previous experience in the target country and its geographic area.

Models 1 through 3 include the first legal rights variable, Civil, to indicate that the bidder firm acquires a target from a civil law country. LLSV have shown that shareholder protection is lower in countries with civil law than in countries with common law. Rossi and Volpin (2004) show that takeover markets are more active in countries with better investor protection. Less competition in civil law countries can reduce the acquisition cost for foreign targets and therefore increase the potential profit to the bidder firm. Our findings are robust to the inclusion of the target country's legal system.

Models 4 through 6 include the second legal law variable, Corruption, which is another LLSV measure for shareholder protection. Again, we find that our results remain unchanged.

Lastly, Model 7 includes a variable, Prior, to control for previous experience in the same geographic area as the target country or the target country itself. We show that representation either in the target country or its geographic region prior to the announcement is associated with positive announcement effects. Thus, these findings suggest that investors perceive cross-border acquisitions more favorably if the bidder firm is already familiar with the foreign market and its specific culture and, thereby, able to evade the learning curve of a new market entrant.

2.5.2.2. Rival Firms

Table 2.8 displays the regression results for the rival firms. In particular, we regress the rival firm's mean 3-day CAR on the bidder firm's 3-day CAR, bidder firm's R&D expense relative to total sales in the year prior to the announcement, the Hofstede cultural distance index, type of bidder firm (i.e., early-mover, follower, late-mover), and on other explanatory variables. We find that the coefficient for bidder firms' CARs is positive throughout all models, significant at the 1 percent level. Supporting our univariate results, this finding suggests that the rival CAR tends to move in the same direction as the bidder CAR, indicative of a contagion effect for the rival firms in our sample. Therefore, a negative bidder firm CAR (complete sample, early-movers, followers) is associated with a negative rival firm CAR, and a positive bidder firm CAR (late-mover) elicits positive rival firm response. This implies that the merger event provides information about industry conditions (Mitchell and Mulherin (1996)), prompting investors to re-assess the values of other firms in the same industry.

Also consistent with the univariate results, the rival response is significantly lower for mergers involving greater cultural distance. We further find a lower, or more negative, rival firm reaction to takeovers involving bidder firms with strong intangibles.

While the rival firm market reaction has a tendency to move in the same direction as the bidder firm's market response, the regressions also provide some evidence of a competitive response in certain cases. For example, Panel A shows that the rival firm CAR is positively related to announcements made by early-movers, including early-movers who are strategic pioneers (i.e., those with high R&D). Recall from the bidder regression analysis in Tables 2.6 and 2.7 that early-movers with high levels of R&D experienced significantly lower CARs. Thus, these factors impact the bidder and rival firm response in opposite ways. These findings are consistent with the earlier results indicating that the costs of being a pioneer bidder outweigh the potential benefits, and suggest that rival firms can benefit when the announcing firm loses. Rival firms benefit

most significantly when the strategic pioneer acquires targets in culturally distant countries, where cost disadvantages (Dewenter (1995)) for these pioneers are likely to be great. This finding further supports Hypothesis 3c, indicating that rival firms earn positive CARs during early-mover announcements if late-mover advantages exist and if it is beneficial to wait and learn from early-movers' mistakes.

In Panel B, similar competitive responses appear to occur for rivals of followers with high intangibles. In this case, followers with high R&D experienced higher CARs, while the rival firm reaction to these followers is significantly lower. This finding provides additional support to Hypothesis 3d and suggests that investors perceive innovative followers to be able to create barriers of entry by captioning scarce assets or by increasing switching costs (Lieberman and Montgomery (1988)), thereby leaving rivals with fewer or none other valuable investment alternatives (Carow et al. (2004)). Panel B further shows that rival firms experience negative CARs in response to innovative follower announcements if cultural distance is great. Our results suggest that investors perceive the acquisition to be value destroying and they appear to be concerned that rivals might engage in similarly value destroying activities.

The regressions in Panel C highlight the rival firm response to late-mover and follower announcements. Late-mover and follower rivals experience significantly lower announcement effects compared to early-mover rivals, which implies that rival firms benefit most when the bidder firm is an early-mover. This results suggests that rival firms can learn from the early-mover's mistakes and incorporate this knowledge in a subsequent acquisition at a time when valuable investments are still available (Carow et al. (2004)), the foreign market and government are sympathetic towards US firms (Luo (1998)), existing products can be enhanced (Scherer (1980)), and barriers of entry can still be established (Lieberman and Montgomery (1988)). Panel C therefore provides additional support for Hypotheses 3c and 3d.

2.6. Conclusions

In examining the acquiring firm shareholder wealth effects in cross-border takeovers, we find evidence that cross-border mergers and acquisitions are wealth-destroying if the announcing firm is an early-mover, especially if the firm's R&D expenses are high. Thus, internalization benefits appear not to be large enough to compensate early-movers for the costs of entering the foreign market.

While early-movers seem to experience value destruction from internalizing their intangibles, we find evidence that cross-border acquisitions provide advantages to later market entrants (Hypothesis 1b). We show that innovative followers (i.e., those with high R&D spending) experience significantly positive CARs upon the announcement of a cross-border acquisition. The potential benefits to these innovative followers are plentiful. First, followers can learn from early-movers and thereby avoid costly mistakes. Further, followers can benefit from early-movers' groundwork of preparing the foreign market and government for the new U.S. presence in their country. Finally, followers can improve products and/or production offered by the early-movers which allows followers to ensure market share. Followers might also enter the foreign market early enough to

secure loyal workers, suppliers, and customers. However, these followers enjoy positive CARs only if they expand into countries with a national culture similar to the U.S., where successful integration of the target firm is relatively easy (Hypothesis 2b).

Rival firms tend to experience similar CARs as the announcing firm which is indicative of a contagion effect. Specifically, cross-border acquisitions announcements appear to provide information about industry conditions that prompt investors to re-assess values of other firms in the same industry. We further find some evidence for certain competitive responses. While cross-border acquisitions generally appear to be value-destroying to early-movers, they increase value for the rival firms (hypothesis 3c). Consistent with our earlier findings, it is beneficial to wait and possibly learn from early-movers. Rivals of followers, on the other hand, experience negative announcement CARs. This finding suggests that followers enjoy great benefits and may be able to create barriers of entry which makes it harder for rival firms to subsequently enter the foreign market (Hypothesis 3d).

2.7. Future Research

There are several avenues within the same research stream that can further be explored. For example, expanding the externally matched rivals to obtain a broader dataset would make the results more generalizable, and would enhance the ability to examine differences between the rival set of firms that engage in cross-border M&As themselves and those that do not. If there are significant differences between the sets of rival firms, one could further investigate if investors can forecast which rival firms subsequently engage in cross-border merger announcements (similar to Song and Walking (2005)). Also, examining the factors that influence the likelihood of becoming an early versus late mover in cross-border acquisitions is of interest. Furthermore, an evaluation of the long-run stock price and operating performance of the bidder firms and their rivals, based on their early versus late mover status would shed additional light on the shareholder wealth effects of cross-border mergers. Specifically, we are interested in whether the short-run findings associated with level of R&D and cultural distance continue to hold in the long-run, or if the anticipated performance deviates over a three or five year period after the announcement.

2.8. Notes

1 Hofstede's cultural typology is widely used in the social science literature, and the *Social Science Citation Index* by Thomson lists Geert Hofstede among the top 100 most cited authors. Sondergaard (1994, 2002) addresses common concerns about the cultural dimensions and finds validation in Hofstede's approach. Specifically, he finds that Hofstede's results were confirmed in replication studies by other researchers as well as in Hofstede's own 2001 publication, and that the dimensions are frequently being used as a paradigm in studies that involve cultural differences. A detailed description of the typology is available in the appendix of this paper.

2 We allowed for adjustments when clustering with respect to the announcement date existed. The final distribution by type of announcing firm is as follows: 32 early-movers, 108 followers, and 33 late-movers.

3 We chose to match each sample firm with one external rival to keep the number of firms, for which we hand-collected the Prior variable, at a manageable level.

4 Kogut and Singh (1988) point out that although this particular measure creates weights related to the index variance, there should be no theoretical correlation between any possible measurement errors and other independent variables.

5 This information is obtained from the Directory of Corporate Affiliations.

6 We controlled for additional variables but found them not to be significant and, therefore, we dropped them from the models. Specifically, we also controlled for: *HOSTILE* (dummy variable that takes the value of one if the transaction was hostile, and zero if otherwise or if not indicated), *DEV* (dummy variable that takes the value of one if the target country is a developed country, and zero otherwise), *EXRATE* (relative strength of the target country's currency with respect to the U.S. dollar), and *SIZE* indicates bidder firm's size in the year prior to the cross-border M&A announcement, and it is measured by the natural logarithm of the firm's total assets. This information is found on Compustat.

7 Specifically, we divide geographic area into the following regions: Africa, Asia, Australia, Europe, North America, and South America. Our results do not differ significantly when we substitute PRIOR for experience in the target country only, experience in the same Hofstede area, or any previous international experience by the bidder firm.

8 Recessions occurred from July 1990 through March 1991, and from March 2001 through November 2001. All other time periods were expansions.

9 The difference between the (0,+1) and (-1,+1) window seem to be large. We think that the small sample size might be the reason for this observation.

10 We also test Hypothesis 1a using a different indicator for Strategic Pioneers. Specifically, we look at early Movers that pay for the acquisition of the foreign target in cash. Carow et al. (2004) state that bidder firms that pay for the acquisition in cash are more likely to experience superior stock price performance. In our sample, the mean CARs for Early Movers that pay in cash are positive but not significant, and their median CARs are negative. Further, there is no significant difference between the mean CARs of Early Movers that pay in cash and all other firms that pay in cash.

Table 1.1. Variables used in univariate and regression analyses

This table defines the different variables used in this paper's univariate and regression analysis.

Variables	Definitions
1. RD	Variable indicating the bidder firm's expense for research and development relative to total sales in the year prior to the announcement.
2. AdE	Variable indicating the bidder firm's expense for advertisement relative to total sales in the year prior to the announcement.
3. HCD	Cultural distance measure based on Hofstede's cultural dimensions. See section 4.4. of this paper for the exact computation.
4. CDRD	Interaction variable between cultural distance (CD) and research and development expenses (RD).
5. CDAdE	Interaction variable between cultural distance (CD) and advertisement expenses (AdE).
6. Size	Natural logarithm of bidder firm's total assets in the year prior to the announcement.
7. Cash	Dummy variable indicating that the acquisition was financed 100% using cash.
8. Exrate	Indicates the relative strength of the target country's currency with respect to the U.S. dollar.
9. Dev	Dummy variable indicating that the target country is a developing country.
10. Bprofit	Announcing firm's profitability, measured as the annual income divided by total assets in the year prior to the announcement.
11. Related	Dummy variable indicating that the bidder firm and target firm operate in the same industry as measured by the 4-digit SIC code.

Table 1.1. Variables used in univariate and regression analyses (cont.)

This table defines the different variables used in this paper's univariate and regression analyses.

Variables	Definitions
12. Prev	Dummy variable indicating that the bidder firm had a previous announcement within our sample.
13. dGNI	Difference between the U.S. GNI (gross national income) and the target country's GNI.
14. Prior1 (Int'l)	Dummy variable indicating that the bidder firm has prior international experience.
15. Prior2 (Target)	Dummy variable indicating that the bidder firm has prior experience in the target country.
16. Prior3 (Geo)	Dummy variable indicating that the bidder firm has prior experience in either the target country or its geographic area.

Table 1.2. Distribution by target country

The number of sample firms announcing cross-border M&As in a particular target country and the cultural distance (CD) measures for each target country are shown below.

Country	Frequency	Percent	Cumulative Frequency	Cumulative Percent	CD
Algeria	1	0.21	1	0.21	
Argentina	5	1.07	6	1.28	1.67
Australia	20	4.27	26	5.56	0.02
Austria	2	0.43	28	5.98	1.45
Bahamas	1	0.21	29	6.20	
Belgium	7	1.50	36	7.69	1.51
Bermuda	1	0.21	37	7.91	
Bolivia	1	0.21	38	8.12	
Brazil	8	1.71	46	9.83	2.17
British Virgin Island	1	0.21	47	10.04	
Canada	77	16.45	124	26.50	0.13
Chile	3	0.64	127	27.14	3.82
China	4	0.85	131	27.99	3.12
Denmark	5	1.07	136	29.06	2.09
Egypt	2	0.43	138	29.49	2.31
Finland	5	1.07	143	30.56	1.35
France	29	6.20	172	36.75	1.54
Germany	47	10.04	219	46.79	0.44
Ghana	1	0.21	220	47.01	3.09
Hong Kong	4	0.85	224	47.86	2.44
Iceland	1	0.21	225	48.08	8.07
India	4	0.85	229	48.93	1.53
Indonesia	2	0.43	231	49.36	3.49
Ireland	9	1.92	240	51.28	0.34
Israel	17	3.63	257	54.91	1.67
Italy	9	1.92	266	56.84	0.57
Japan	2	0.43	268	57.26	2.70
Malaysia	1	0.21	269	57.48	4.03
Mexico	4	0.85	273	58.33	3.08
Netherlands	17	3.63	290	61.97	1.70
New Zealand	1	0.21	291	62.18	0.24
Norway	2	0.43	293	62.61	2.31
Pakistan	1	0.21	294	62.82	3.06
Peru	2	0.43	296	63.25	3.78
Philippine	1	0.21	297	63.46	2.97

Table 1.2. Distribution by target country (cont.)

The number of sample firms announcing cross-border M&As in a particular target country and the cultural distance (CD) measures for each target country are shown below.

Country	Frequency	Percent	Cumulative Frequency	Cumulative Percent	CD
Portugal	1	0.21	298	63.68	4.24
Puerto Rico	3	0.64	301	64.32	
Russian Federation	3	0.64	304	64.96	4.13
Singapore	1	0.21	305	65.17	3.56
South Africa	2	0.43	307	65.60	0.34
South Korea	4	0.85	311	66.45	3.58
Spain	6	1.28	317	67.74	1.84
Sweden	8	1.71	325	69.44	2.63
Switzerland	10	2.14	335	71.58	0.36
Taiwan	4	0.85	339	72.44	2.99
Thailand	2	0.43	341	72.86	3.18
Trinidad&Tobaco	1	0.21	342	73.08	2.63
United Kingdom	124	26.50	466	99.57	0.08
Venezuela	1	0.21	467	99.78	4.05
Zambia	1	0.21	468	100.00	2.40

Table 1.3. Distribution by year of announcement

The number of sample firms announcing cross-border M&As in a particular year over the time frame from 1987 to 2004 is shown below.

Year	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1987	8	1.71	8	1.71
1988	7	1.50	15	3.21
1989	11	2.35	26	5.56
1990	8	1.71	34	7.26
1991	10	2.14	44	9.40
1992	5	1.07	49	10.47
1993	11	2.35	60	12.82
1994	13	2.78	73	15.60
1995	26	5.56	99	21.15
1996	30	6.41	129	27.56
1997	40	8.55	169	36.11
1998	53	11.32	222	47.44
1999	40	8.55	262	55.98
2000	65	13.89	327	69.87
2001	38	8.12	365	77.99
2002	30	6.41	395	84.40
2003	28	5.98	423	90.38
2004	45	9.62	468	100.00

Table 1.4. Descriptive statistics for the explanatory variables

This table provides information about the mean, median, and standard deviation for the main variables of interest, R&D, advertisement expense, and cultural distance, as well as for control variables that are used in the paper's regression analyses. The variables used in this table are defined in Table 1.

Variable	N	Mean	Median	Std Dev
RD	466	0.09	0.02	0.37
AdE	466	0.01	0.00	0.03
CD	460	0.89	0.34	1.11
dGNI	444	13840.99	11550.00	7008.50
Size	468	7.05	6.99	1.83
Cash	468	0.78	1.00	0.42
Exrate	463	89.06	1.31	732.12
Dev	468	0.11	0.00	0.31
BProfit	468	0.04	0.06	0.14
Related	468	0.36	0.00	0.48
Prev	468	0.43	0.00	0.50
Prior1 (Geo)	356	0.62	1.00	0.49
Prior2 (Target)	356	0.33	0.00	0.47
Prior3 (Int'l)	356	0.68	1.00	0.47

Table 1.5. Cumulative abnormal returns associated with cross-border M&As

This table indicates the cumulative 2-day (0, +1) and 3-day (-1, +1) abnormal mean and median announcement returns for the full sample as well as for various subsamples. We conduct significance test using Student's t statistic and its associated p-value for the mean abnormal returns, and Wilcoxon signed-rank test and its associated p-value for the median abnormal returns.

	2-day CAR		3-day CAR	
	Value	p-value	Value	p-value
Full sample (N = 468)				
Mean abnormal return	0.005*	(0.10)	0.004	(0.22)
Median abnormal return	0.003*	(0.07)	0.002	(0.25)
Low Advertisement Expense (N = 381)				
Mean abnormal return	0.006	(0.12)	0.003	(0.40)
Median abnormal return	0.004*	(0.07)	0.002	(0.49)
Unrelated merger (N = 298)				
Mean abnormal return	0.009**	(0.02)	0.005**	(0.02)
Median abnormal return	0.008**	(0.04)	0.006**	(0.03)
Developed Country (N = 417)				
Mean abnormal return	0.005	(0.14)	0.005	(0.22)
Median abnormal return	0.004*	(0.07)	0.003	(0.22)
Cash (N = 363)				
Mean abnormal return	0.008***	(0.00)	0.009***	(0.01)
Median abnormal return	0.004***	(0.02)	0.004***	(0.03)
Low CD (N = 413)				
Mean abnormal return	0.006	(0.11)	0.005	(0.17)
Median abnormal return	0.004**	(0.04)	0.003	(0.17)
No previous sample announcement (N = 268)				
Mean abnormal return	0.011**	(0.02)	0.009*	(0.07)
Median abnormal return	0.005**	(0.01)	0.006*	(0.07)
Germany (N = 47)				
Mean abnormal return (%)	0.026***	(0.01)	0.028***	(0.01)
Median abnormal return (%)	0.011**	(0.04)	0.017**	(0.03)
Australia (N = 20)				
Mean abnormal return (%)	0.013*	(0.07)	0.024*	(0.06)
Median abnormal return (%)	0.009	(0.13)	0.007*	(0.08)

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.6. Ordinary least squares analysis explaining 3-day cumulative abnormal returns of bidder firms in response to cross-border M&A announcements

This table shows the results of two multivariate regression analyses to explain bidder firms' cumulative abnormal returns in cross-border M&A announcements. Model 1 focuses on the variables of interest, which are intangible assets, cultural distance, and the interaction between them. Model 2 further includes some common control variables. The variables used in this table are defined in Table 1.

Variable	Model 1	Model 2
Intercept	0.0008	0.0117
	(0.21)	(-0.43)
RD	-0.0848***	-0.0754***
	(-4.38)	(-3.51)
AdE	-0.0672	0.0561
	(-0.75)	(0.44)
CD	-0.0087**	-0.0061
	(-2.48)	(-1.3)
CDRD	-0.1141***	-0.1062***
	(-3.94)	(-3.41)
CDAdE	0.0227	-0.0050
	(0.25)	(-0.04)
Size		-0.0063***
		(-2.67)
Cash		0.0245**
		(2.03)
Exrate		0.0000
		(-0.53)
Dev		-0.0103
		(-0.73)
Bprofit		0.0209
		(0.86)
Related		-0.0158
		(-1.74)
Industry Dummies		Yes
Year Dummies		Yes
N	458	453
Adj. R^2	0.0327	0.1134
F-value	4.05***	1.59**

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.7. Robustness tests for ordinary least squares analysis explaining 3-day cumulative abnormal returns of bidder firms in response to cross-border M&A announcements

This table shows the results of additional multivariate regression analyses to explain bidder firms' cumulative abnormal returns in cross-border M&A announcements. Model 1 examines the impact of previous bidder announcements on the 3-day CAR, and Model 2 examines the impact of differences in wage levels between bidder and target countries on the 3-day CAR. Model 3 and Model 4 control for LLSV's law-related variables. Specifically, in Model 3 we include Civil, which is a dummy variable equal to 1.0 if the target country practices civil law. In Model 4 we include Corruption, an index ranging from 0 (low protection against corruption) to 10 (high protection against corruption). The variables used in this table are defined in Table 1.

Variable	Model 1	Model 2	Model 3	Model 4
Intercept	0.0065	0.0037	-0.0082	-0.0205
	(1.27)	(0.50)	(-1.43)	(-0.88)
RD	-0.0855***	-0.0767***	-0.0941***	-0.0908***
	(-4.37)	(-3.71)	(-4.73)	(-4.91)
AdE	-0.0770	0.0344	-0.0713	-0.0440
	(-0.86)	(-0.38)	(-0.80)	(-0.48)
CD	-0.0081**	-0.0079*	-0.0148***	-0.0071
	(-2.29)	(-1.94)	(-3.16)	(-1.57)
CDRD	-0.1145***	-0.1026***	-0.1288***	-0.1236***
	(-3.96)	(-3.41)	(-4.29)	(-4.32)
CDAdE	0.0391	0.0347	-0.0576	-0.0497
	(0.42)	(0.36)	(-0.72)	(-0.61)
Prev	-0.0133**			
	(-1.98)			
dGNI		-2.61e-07		
		(-0.53)		
Civil			0.1952**	
			(2.30)	
Corruption				0.0024
				(0.88)
N	458	436	447	447
Adj. R^2	0.0405	0.0287	0.0468	0.0372
F-value	3.50***	2.38**	4.26***	4.38***

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.8. Calendar-time returns

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel A: Full Sample

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3204***	1.2910***	1.2739***	1.0813***	1.1379***	1.0220***
	(34.02)	(32.52)	(39.28)	(19.72)	(22.57)	(21.89)
SMB	0.2177***	0.2557***	0.3306***	-0.3679***	-0.1703***	-0.1563***
	(4.59)	(4.17)	(7.08)	(-6.8)	(-4.22)	(-4.70)
HML	0.1772***	0.1575***	0.3161***	-0.3552***	-0.2346***	-0.1429***
	(3.19)	(2.94)	(7.11)	(-4.71)	(-4.53)	(-2.90)
Intercept (a)	-0.2502	-0.2398	-0.17015	-0.2108	-0.006	-0.17957
	(-1.61)	(-1.47)	(0.24)	(-1.02)	(-0.04)	(0.14)

Panel B: High levels of RD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3096***	1.2735***	1.2617***	1.0673***	1.0926***	0.9566***
	(21.37)	(21.66)	(26.52)	(17.6)	(18.03)	(22.08)
SMB	0.1508**	0.1436*	0.2360***	-0.4315***	-0.2235***	-0.1582***
	(2.38)	(1.85)	(4.09)	(-6.24)	(-4.47)	(-3.74)
HML	0.1418*	0.1097733	0.2629***	-0.4834***	-0.3154***	-0.2001***
	(1.75)	(1.44)	(4.13)	(-4.96)	(-4.64)	(-3.15)
Intercept (a)	-0.0211	-0.0319	0.071032	0.2805	0.2797	0.1139
	(-0.09)	(-0.13)	(0.34)	(1.01)	(1.27)	(0.70)

***	Significant at the 0.01 level.
**	Significant at the 0.05 level.
*	Significant at the 0.10 level.

Table 1.8. Calendar-time returns (cont.)

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel C: Low levels of RD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3077***	1.2736***	1.2574***	1.0820***	1.1650***	1.0755***
	(25.13)	(23.31)	(27.52)	(12.88)	(15.93)	(15.21)
SMB	0.3032***	0.4000***	0.4497***	-0.3100***	-0.1200*	-0.1732
	(4.12)	(4.23)	(5.86)	(-3.72)	(-1.91)	(-3.56)
HML	0.1905**	0.1729**	0.3422***	-0.2418**	-0.1680**	-0.902
	(2.46)	(2.30)	(5.49)	(-2.13)	(-2.25)	(-1.29)
Intercept (a)	-0.4292**	-0.3913*	-0.3585*	-0.6319**	-0.2289	-0.4061**
	(-2.00)	(-1.78)	(-1.79)	(-2.20)	(-1.09)	(-2.47)

Panel D: High levels of AdE

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.1476***	1.1136***	1.1219***	0.9450***	0.9074***	0.9533***
	(14.93)	(16.39)	(20.50)	(9.23)	(12.96)	(16.39)
SMB	0.3148***	0.2661**	0.3366***	-0.2627*	-0.2901***	-0.2738***
	(3.00)	(2.46)	(3.21)	(-1.92)	(-0.33)	(-3.99)
HML	0.0512	-0.0526	0.1662*	-0.3466*	-0.4338***	-0.2159**
	(0.43)	(-0.49)	(1.70)	(-1.94)	(-4.81)	(-2.48)
Intercept (a)	-0.6111**	-0.24	-0.2315	0.0914	-0.032	0.0001
	(-2.21)	(-0.91)	(-1.03)	(0.22)	(-0.14)	(0.00)

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.8. Calendar-time returns (cont.)

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel E: Low levels of AdE

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3444***	1.3219***	1.3002***	1.1132***	1.1818***	1.0397***
	(31.18)	(29.68)	(35.87)	(18.15)	(20.76)	(19.26)
SMB	0.2098***	0.2608***	0.3344***	-0.3807***	-0.1511***	-0.1408***
	(4.14)	(3.95)	(6.69)	(-6.63)	(-3.46)	(-3.86)
HML	0.1907***	0.1906***	0.3394***	-0.3522***	-0.1993***	-0.1255
	(3.06)	(3.16)	(6.82)	(-4.22)	(-3.40)	(-2.25)
Intercept (a)	-0.1988	-0.2783	-0.1884	-0.3232	-0.0538	-0.2425*
	(-1.10)	(-1.45)	(-1.10)	(-1.36)	(-0.29)	(-1.65)

Panel F: High levels of CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.2665***	1.2750***	1.2802***	1.0472***	1.1566***	1.0560***
	(15.53)	(13.59)	(20.04)	(12.64)	(10.15)	(14.39)
SMB	0.0789	0.1183	0.2013***	-0.6014***	-0.2084**	-0.2085***
	(0.89)	(0.97)	(2.71)	(-5.86)	(-2.49)	(-2.82)
HML	0.1882	0.1818	0.3329***	-0.5822***	-0.2505**	-0.1850*
	(1.58)	(1.59)	(3.83)	(-3.38)	(-2.03)	(-1.78)
Intercept (a)	-0.7406*	-1.0863***	-0.6870**	-0.3551	-0.4246	-0.6135**
	(-1.95)	(-2.74)	(-2.27)	(-0.54)	(-0.97)	(-2.16)

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.8. Calendar-time returns (cont.)

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel G: Low levels of CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3292***	1.2931***	1.2717***	1.0856***	1.1343***	1.0155***
	(30.62)	(29.56)	(34.69)	(17.42)	(20.08)	(18.71)
SMB	0.2433***	0.2787***	0.3548***	-0.3236***	-0.1654***	-0.1486***
	(4.47)	(3.98)	(6.50)	(-5.28)	(-3.63)	(-3.99)
HML	0.1766***	0.15556***	0.3118***	-0.3151***	-0.2311***	-0.1346**
	(2.86)	(2.63)	(6.35)	(-3.80)	(-4.03)	(-2.45)
Intercept (a)	-0.2065	-0.1508	-0.12	-0.2089	0.0458	-0.1243
	(-1.23)	(-0.86)	(-0.76)	(-0.96)	(0.27)	(-0.92)

Panel H: Low RD & Low CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.2948***	1.2275***	1.2200***	1.0666***	1.1333***	1.0738***
	(23.05)	(23.84)	(25.18)	(11.38)	(13.54)	(13.01)
SMB	0.3871***	0.5245***	0.5584***	-0.2013**	-0.0982	-0.1728***
	(4.55)	(5.71)	(6.24)	(-2.12)	(-1.28)	(-3.14)
HML	0.1624*	0.1398*	0.3189***	-0.1716	-0.1855**	-0.0646
	(1.87)	(1.75)	(4.55)	(-1.35)	(-2.19)	(-0.80)
Intercept (a)	-0.4121*	-0.2992	-0.3184	-0.6154**	-0.1474	-0.3051
	(-1.77)	(-1.27)	(-1.46)	(-2.03)	(-0.63)	(-1.61)

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.8. Calendar-time returns (cont.)

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel I: Low RD & High CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.2344***	1.3192***	1.2948***	1.0403***	1.2953***	1.0772***
	(10.63)	(9.38)	(14.58)	(7.17)	(7.77)	(11.63)
SMB	0.092	0.1008	0.1989**	-0.6381***	-0.1463	-0.2199**
	(0.77)	(0.67)	(2.18)	(-4.72)	(-1.22)	(-2.59)
HML	0.2196	0.2383	0.3804***	-0.5609***	-0.0804	-0.178
	(1.33)	(1.55)	(3.42)	(-3.03)	(-0.45)	(-1.54)
Intercept (a)	-0.8433	-1.3243**	-0.8889**	-0.9404	-0.6996	-1.0372***
	(-1.68)	(-2.51)	(-2.27)	(-0.91)	(-1.26)	(-2.99)

Panel J: High RD & Low CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3209***	1.2965***	1.2718***	1.0880***	1.1182***	0.9558***
	(18.76)	(19.41)	(22.93)	(15.57)	(16.30)	(19.35)
SMB	0.1659**	0.1446*	0.2409***	-0.4154***	-0.2124***	-0.1558***
	(2.41)	(1.74)	(3.85)	(-5.57)	(-3.97)	(-3.49)
HML	0.1547*	0.1218	0.2715***	-0.4583***	-0.2858***	-0.2005***
	(1.75)	(1.48)	(3.92)	(-4.42)	(-3.90)	(-2.98)
Intercept (a)	0.035	0.0196	0.1047	0.2367	0.2646	0.0962
	(0.14)	(0.08)	(0.46)	(0.80)	(1.13)	(0.56)

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.8. Calendar-time returns (cont.)

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel K: High RD & High CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3056***	1.1759***	1.2332***	0.9568***	0.9569***	0.9563***
	(13.70)	(13.81)	(18.76)	(9.09)	(9.76)	(14.05)
SMB	0.0061	0.1874	0.2060*	-0.5472***	-0.2724**	-0.1843
	(0.04)	(1.46)	(1.75)	(-3.27)	(-2.20)	(-1.23)
HML	0.0738	0.0784	0.2229	-0.6683*	-0.5356***	-0.1200
	(0.38)	(0.43)	(1.49)	(-1.98)	(-3.19)	(-0.88)
Intercept (a)	-0.6981	-0.5192	-0.2912	0.7188	0.4880	0.2827
	(-1.66)	(-1.04)	(-0.68)	(0.92)	(0.86)	(0.68)

Panel L: Low AdE & Low CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.3597***	1.3328***	1.3039***	1.1274***	1.1842***	1.0386***
	(27.62)	(26.70)	(31.31)	(16.01)	(18.50)	(16.29)
SMB	0.2391***	0.2833***	0.3588***	-0.3408***	-0.1463***	-0.1348***
	(4.07)	(3.72)	(6.08)	(-5.27)	(-2.96)	(-3.30)
HML	0.1886***	0.1850***	0.3352***	-0.3048---	-0.1973***	-0.1220*
	(2.72)	(2.79)	(6.06)	(-3.34)	(-3.03)	(-1.94)
Intercept (a)	-0.1926	-0.2309	-0.1768	-0.3758	-0.0125	-0.1969
	(-0.98)	(-1.12)	(-0.96)	(-1.48)	(-0.06)	(-1.18)

***	Significant at the 0.01 level.
**	Significant at the 0.05 level.
*	Significant at the 0.10 level.

Table 1.8. Calendar-time returns (cont.)

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel M: Low AdE & High CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.2551***	1.2521***	1.2702***	1.0482***	1.1639***	1.0391***
	(14.21)	(12.63)	(19.06)	(11.34)	(9.33)	(13.36)
SMB	0.0713	0.1429	0.2196***	-0.5829***	-0.1877	-0.1832**
	(0.74)	(1.09)	(2.71)	(-5.08)	(-2.13)	(-2.17)
HML	0.2283	0.2461*	0.3794***	-0.6172***	-0.2077	-0.1461
	(1.60)	(1.77)	(3.56)	(-3.11)	(-1.55)	(-1.21)
Intercept (a)	-0.5113	-0.8967*	-0.4577	-0.1006	-0.4378	-0.6324*
	(-1.17)	(-1.95)	(-1.31)	(-0.13)	(-0.82)	(-1.88)

Panel N: High AdE & Low CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.1523***	1.1116***	1.1235***	0.9361***	0.8966***	0.9349***
	(14.00)	(16.15)	(20.51)	(8.52)	(12.20)	(15.77)
SMB	0.2946***	0.2817**	0.3481***	-0.1741	-0.2783***	-0.2502***
	(2.64)	(2.46)	(3.12)	(-1.17)	(-2.94)	(-3.25)
HML	0.1012	0.0122	0.2227*	-0.3018	-0.3834***	-0.1543
	(0.72)	(0.10)	(1.92)	(-1.40)	(-3.98)	(-1.50)
Intercept (a)	-0.5006	-0.074	-0.094	0.2371	-0.0418	0.047
	(-1.63)	(-0.26)	(-0.39)	(0.52)	(-0.16)	(0.20)

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.8. Calendar-time returns (cont.)

This table provides results for the calendar-time returns. The calendar-time portfolio abnormal returns are determined by regressing the abnormal portfolio returns on the Fama and French (1993) 3-factor model:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_pSMB_t + h_pHML_t + e_{pt}$$

In this regression, R_{pt} is the monthly return on the calendar-time portfolio (portfolios are built equally weighted, EW, and value weighted, VW), R_{ft} is the monthly risk-free return as measured by the 3-month T-bill rate, R_{mt} is the monthly return on the market index as measured by the VW CRSP index, SMB_t is the difference between returns of portfolios of small stocks and big stocks, and HML_t is the difference between returns of portfolios of high book-to-market (BM) stocks and low BM stocks. a_p, b_p, s_p, and h_p are the regression's parameter estimates. The intercept a_p is of special importance because it measures the average monthly abnormal portfolio return. If the Fama and French (1993) 3-factor model can explain the portfolio excess return, then the intercept should yield a value of zero. Values significantly different from zero consequently represent abnormal returns.

Panel O: High AdE & High CD

	ER1 (ew)	ER3 (ew)	ER5 (ew)	ER1 (vw)	ER3 (vw)	ER5 (vw)
ER_{market}	1.1539***	1.3489***	1.2630***	1.3717***	0.9348***	1.1874***
	(7.25)	(9.49)	(8.97)	(5.84)	(5.64)	(11.40)
SMB	0.5034**	0.1792	0.2749	-0.9322	-0.3153	-0.3837**
	(3.28)	(1.12)	(1.83)	(-3.24)	(-1.68)	(-2.47)
HML	-0.0804	-0.0464	0.1177	-0.1457	-0.6183**	-0.2578**
	(-0.43)	(-0.29)	(0.90)	(-0.48)	(-3.23)	(-2.32)
Intercept (a)	-1.1493*	-1.7225***	-1.3485***	-1.9780	0.0080	-0.7382
	(-1.93)	(-5.37)	(-4.44)	(-1.45)	(0.01)	(-1.49)

***	Significant at the 0.01 level.
**	Significant at the 0.05 level.
*	Significant at the 0.10 level.

Table 1.9. Ordinary least squares analysis explaining the abnormal operating performance of bidder firms in the three years following the announcement of a cross-border M&A

This table shows the results of two multivariate regression analyses to explain bidder firms' abnormal operating performance in years 1, 2, and 3 after cross-border M&A announcements. Model 1 focuses on the variables of interest, which are intangible assets, cultural distance, and the interaction between them. Model 2 further includes some common control variables. The variables used in this table are defined in Table 1.

Model 1

Variable	Abnormal OP 1	Abnormal OP 2	Abnormal OP 3
Intercept	-0.1202***	-0.0782***	-0.1925*
	(-3.10)	(-2.92)	(-1.92)
RD	-1.8160***	-1.3089***	-3.2864***
	(-3.00)	(-4.51)	(-3.53)
AdE	-0.2606	0.8006*	1.1680
	(-0.39)	(1.93)	(0.80)
CD	-0.0353	0.0585**	0.2105***
	(-0.72)	(1.97)	(2.97)
CDRD	-0.5684	1.0338***	3.4006***
	(-0.76)	(2.74)	(2.90)
CDAdE	0.0758	0.1538	0.2568
	(0.18)	(0.47)	(0.22)
N	402	353	311
Adj. R^2	0.5364	0.7286	0.4921
F-value	22.87***	21.19***	3.63***

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.9. Ordinary least squares analysis explaining the abnormal operating performance of bidder firms in the three years following the announcement of a cross-border M&A (cont.)

This table shows the results of two multivariate regression analyses to explain bidder firms' abnormal operating performance in years 1, 2, and 3 after cross-border M&A announcements. Model 1 focuses on the variables of interest, which are intangible assets, cultural distance, and the interaction between them. Model 2 further includes some common control variables. The variables used in this table are defined in Table 1.

Model 2

Variable	Abnormal OP 1	Abnormal OP 2	Abnormal OP 3
Intercept	0.4827**	-0.3135***	-0.6909
	(-2.29)	(-3.27)	(-1.23)
RD	-1.7673***	-1.2967***	-3.1898***
	(-2.74)	(-3.95)	(-2.98)
AdE	-0.3724	0.3871	1.8335
	(-0.48)	(0.90)	(0.74)
CD	-0.0384	0.0412	0.1658***
	(-0.80)	(1.43)	(2.58)
CDRD	-0.6329	1.0327***	3.2980**
	(-0.79)	(2.68)	(2.34)
CDAdE	-0.4723	-0.0241	-0.8517
	(-0.74)	(-0.06)	(-0.42)
Size	-0.0419	0.0350**	0.1079
	(1.62)	(2.17)	(1.10)
Cash	0.0659	-0.0538	-0.3899
	(0.77)	(-0.57)	(-1.57)
Exrate	0.0000	0.0000	0.0001
	(-0.18)	(0.87)	(1.20)
Dev	-0.03921	0.0249	-0.0512
	(-0.67)	(0.65)	(-0.41)
Bprofit	0.3361	-0.0459	0.8989
	(1.20)	(-0.21)	(0.71)
Related	0.0062	0.0673	0.1062
	(0.09)	(1.34)	(-0.38)
N	398	349	307
Adj. R^2	0.5549	0.7352	0.5042
F-value	13.89***	20.91***	2.80***

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.10. Robustness tests for ordinary least squares analysis explaining the abnormal operating performance of bidder firms in the three years following the announcement of a cross-border M&A

This table shows the results of additional multivariate regression analyses to explain bidder firms' abnormal operating performance in years 1, 2, and 3 after cross-border M&A announcements. Model 1 examines the impact of previous bidder announcements on abnormal operating performance, and Model 2 examines the impact of differences in wage levels between bidder and target countries on abnormal operating performance. The variables used in this table are defined in Table 1.

Model 1

Variable	Abnormal OP 1	Abnormal OP 2	Abnormal OP 3
Intercept	-0.1365***	-0.1112***	-0.2629*
	(-2.71)	(-2.93)	(-1.65)
RD	-1.8109***	-1.2934***	-3.2458***
	(-2.99)	(-4.42)	(-3.50)
AdE	-0.2350	0.8422**	1.2738
	(-0.34)	(2.02)	(0.83)
CD	-0.0377	0.0537*	0.2023***
	(-0.77)	(1.86)	(2.92)
CDRD	-0.5626	1.0535***	3.4215***
	(-0.75)	(2.73)	(2.90)
CDAdE	0.0463	0.1015	0.1197
	(0.10)	(0.30)	(0.09)
Prev	0.03837	0.0801*	0.1638
	(0.82)	(1.81)	(1.09)
N	402	353	311
Adj. R^2	0.5370	0.7304	0.4932
F-value	19.28***	19.86***	3.17***

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.10. Robustness tests for ordinary least squares analysis explaining the abnormal operating performance of bidder firms in the three years following the announcement of a cross-border M&A (cont.)

This table shows the results of additional multivariate regression analyses to explain bidder firms' abnormal operating performance in years 1, 2, and 3 after cross-border M&A announcements. Model 1 examines the impact of previous bidder announcements on abnormal operating performance, and Model 2 examines the impact of differences in wage levels between bidder and target countries on abnormal operating performance. The variables used in this table are defined in Table 1.

Model 2

Variable	Abnormal OP 1	Abnormal OP 2	Abnormal OP 3
Intercept	-0.1188***	-0.1288***	-0.2672***
	(-2.62)	(-4.68)	(-2.66)
RD	-1.8596***	-1.2529***	-3.1853***
	(-2.97)	(-4.17)	(-3.41)
AdE	-0.1954	0.7608*	1.1103
	(-0.30)	(1.73)	(0.73)
CD	-0.0350	0.0541*	0.1992***
	(-0.69)	(1.70)	(2.81)
CDRD	-0.6323	1.1121***	3.5445***
	(-0.80)	(2.83)	(2.83)
CDAdE	0.0114	0.0351	0.1735
	(0.03)	(0.10)	(0.14)
dGNI	0.0000	0.0000*	0.0000
	(-0.21)	(1.86)	(1.19)
N	381	336	296
Adj. R^2	0.5398	0.7320	0.4924
F-value	19.30***	22.15***	3.08***

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.10. Robustness tests for ordinary least squares analysis explaining the abnormal operating performance of bidder firms in the three years following the announcement of a cross-border M&A (cont.)

This table shows the results of additional multivariate regression analyses to explain bidder firms' abnormal operating performance in years 1, 2, and 3 after cross-border M&A announcements. Model 1 examines the impact of previous bidder announcements on abnormal operating performance, and Model 2 examines the impact of differences in wage levels between bidder and target countries on abnormal operating performance. The variables used in this table are defined in Table 1.

Model 3

Variable	OP 1	OP 2	OP 3
Intercept	-0.1532***	-0.1186***	-0.2856*
	(-3.16)	(-3.00)	(-1.72)
RD	-1.8306***	-1.2822***	-3.2010***
	(-2.94)	(-4.53)	(-3.53)
AdE	-0.3425	0.7704*	1.0422
	(-0.53)	(1.80)	(0.75)
CD	-0.0549	0.0301	0.1534**
	(-1.22)	(0.97)	(2.50)
CDRD	-0.5922	1.0641***	3.5022***
	(-0.77)	(2.86)	(2.98)
CDAdE	0.0688	0.2147	0.2466
	(0.15)	(0.57)	(0.21)
Civil	0.0781	0.0913*	0.2217
	(1.49)	(1.85)	(1.26)
N	394	347	306
Adj. R^2	0.5379	0.7302	0.4938
F-value	18.96***	17.66***	2.94***

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 1.10. Robustness tests for ordinary least squares analysis explaining the abnormal operating performance of bidder firms in the three years following the announcement of a cross-border M&A (cont.)

This table shows the results of additional multivariate regression analyses to explain bidder firms' abnormal operating performance in years 1, 2, and 3 after cross-border M&A announcements. Model 1 examines the impact of previous bidder announcements on abnormal operating performance, and Model 2 examines the impact of differences in wage levels between bidder and target countries on abnormal operating performance. The variables used in this table are defined in Table 1.

Model 4

Variable	OP 1	OP 2	OP 3
Intercept	-0.4006**	0.1914	0.0528
	(-1.97)	(1.10)	(0.08)
RD	-1.8205***	-1.2465***	-3.1680***
	(-3.02)	(-4.26)	(-3.32)
AdE	-0.1093	0.6912	1.0903
	(-0.17)	(1.63)	(0.66)
CD	-0.0072	0.0343	0.2013**
	(-0.16)	(1.25)	(2.42)
CDRD	-0.5784	1.1140***	3.5593***
	(-0.77)	(2.83)	(2.81)
CDAdE	0.2085	0.0444	-0.0475
	(0.46)	(0.12)	(-0.05)
Corruption	0.0322	-0.0308	-0.0273
	(1.58)	(-1.62)	(-0.41)
N	394	347	306
Adj. R^2	0.5386	0.7301	0.4927
F-value	18.94***	18.34***	3.25***

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 2.1. Variables used in univariate and regression analyses

This table defines the different variables used in this paper's univariate and regression analyses.

Variables	Definitions
1. CD	Cultural distance measure based on Hofstede's cultural dimensions. See section 4.4. of this paper for the exact computation.
2. RD	Dummy variable indicating that the bidder firm's expense for research and development relative to total sales in the year prior to the announcement was greater than the industry average.
3. EM	Dummy variable indicating that the announcing bidder firm is an early-mover.
4. REM	Dummy variable indicating the rival firm is matched with an early-mover bidder firm.
5. F	Dummy variable indicating that the announcing bidder firm is a follower.
6. RF	Dummy variable indicating that rival firm is matched with a follower bidder firm.
7. LM	Dummy variable indicating that the announcing bidder firm is a late-mover.
8. RLM	Dummy variable indicating the rival firm is matched with a late-mover bidder firm.
9. Cash	Dummy variable indicating that the acquisition was financed 100% using cash.
10. RelSize	Transaction value of the acquisition divided by the natural logarithm of the announcing firm's total assets in the year prior to the announcement.

Table 2.1. Variables used in univariate and regression analyses (cont.)

This table defines the different variables used in this paper's univariate and regression analyses.

Variables	Definitions
11. Profit	Announcing firm's profitability, measured as the annual income divided by total assets in the year prior to the announcement.
12. RProfit	rival firm's profitability, measured as the annual income divided by total assets in the year prior to the bidder firm's announcement.
13. Exrate	Indicates the relative strength of the target country's currency with respect to the U.S. dollar.
14. Expansion	Dummy variable indicating that the announcement took place during an expansionary economy.
15. Prior	Dummy variable indicating that the announcing firm has previous experience in the target country or its geographic region.
16. RPrior	Dummy variable indicating that the rival firm has previous experience in the target country or its geographic region.
17. CAR	Announcing firm's 3-day cumulative abnormal return.
18. Civil	Dummy variable indicating that the target is located in a civil law country compared to a common law country.
19. Corruption	Variable indicating the degree of investor protection in the target country, measured by the corruption index (ranges from low (0) to high (1)).

Table 2.2. Distribution by year of announcement

The number of sample firms announcing cross-border M&As in a particular year over the time frame from 1987 to 2004 is shown below.

Year	Frequency	%	Cumulative frequency	Cumulative %
1987	1	0.58	1	0.58
1988	4	2.31	5	2.89
1989	4	2.31	9	5.20
1990	2	1.16	11	6.36
1991	2	1.16	13	7.51
1992	5	2.89	18	10.40
1993	2	1.16	20	11.56
1994	5	2.89	25	14.45
1995	8	4.62	33	19.08
1996	7	4.05	40	23.12
1997	10	5.78	50	28.90
1998	22	12.72	72	41.62
1999	14	8.09	86	49.71
2000	26	15.03	112	64.74
2001	15	8.67	127	73.41
2002	12	6.94	139	80.35
2003	12	6.94	151	87.28
2004	22	12.72	173	100.00

Table 2.3. Descriptive statistics for announcing firm sample and industry-related rival portfolio

Panel A provides the mean and median descriptive for firms announcing cross-border M&As.

Panel B provides similar statistics for the industry rival firm portfolios of the announcing sample firms.

Panels C and D provide rival firm statistics for rival firms that have cross-border M&A announcements themselves and rivals that do not have any cross-border M&A announcements, respectively.

Panels E and F provide rival firm statistics for rival firms that become subsequent bidders themselves and rival firms that do not becomes subsequent bidders, respectively.

Panels G and H provide rival firm statistics for rival firms that become subsequent bidders with no previous announcements and with previous announcements, respectively.

Key Variables	Mean	Median	Number reporting
Panel A: Announcing Firms			
HCD			
Transaction Value (in millions)	264.80	58.75	173
Exchange Rate Volatility	0.06	0.04	173
Net Income (in millions)	262.47	23.57	173
Cash Flow (in millions)	405.17	59.70	173
Sales (in millions)	1714.98	662.19	173
Research and development (in millions)	299.39	18.30	173
Advertisement (in millions)	61.12	0.00	173
Total assets (in millions)	2945.39	915.43	173
Research and delvelopment / Sales	0.10	0.08	173
Advertisement / Sales	0.01	0.00	173
Profitability (Net Income / Total Assets)	0.03	0.04	173
Size (ln(total assets))	6.70	6.82	173
Relative Size (Transaction Value / Size)	0.16	0.09	173
ROE	8.95	9.98	173
CAR	-0.007	-0.004	173
Panel B: Industry Rivals - All Rivals			
Net Income (in millions)	370.15	16.32	1354
Cash Flow (in millions)	532.28	53.80	1343
Sales (in millions)	2083.39	486.48	1354
Research and development (in millions)	223.32	19.61	1354
Advertisement (in millions)	35.92	0.00	1354
Total assets (in millions)	3612.42	759.64	1353
Research and delvelopment / Sales	0.16	0.11	1354
Advertisement / Sales	0.01	0.00	1354
Profitability (Net Income / Total Assets)	-0.01	0.05	1353
Size (ln(total assets))	6.56	6.63	1353
ROE	2.84	9.79	1354
Rival CAR	-0.003*	-0.002**	1354

Table 2.3. Descriptive statistics for announcing firm sample and industry-related rival portfolio (cont.)

Panel A provides the mean and median descriptive for firms announcing cross-border M&As.

Panel B provides similar statistics for the industry rival firm portfolios of the announcing sample firms.

Panels C and D provide rival firm statistics for rival firms that have cross-border M&A announcements themselves and rivals that do not have any cross-border M&A announcements, respectively.

Panels E and F provide rival firm statistics for rival firms that become subsequent bidders themselves and rival firms that do not becomes subsequent bidders, respectively.

Panels G and H provide rival firm statistics for rival firms that become subsequent bidders with no previous announcements and with previous announcements, respectively.

Key Variables	Mean	Median	Number reporting
Panel C: Industry Rivals - Matched within-sample			
Net Income (in millions)	376.00	14.75	1181
Cash Flow (in millions)	535.00	52.88	1170
Sales (in millions)	1995.25	464.41	1181
Research and development (in millions)	228.26	20.20	1181
Advertisement (in millions)	36.28	0.00	1181
Total assets (in millions)	3603.41	763.49	1180
Research and delvelopment / Sales	0.17	0.12	1181
Advertisement / Sales	0.01	0.00	1181
Profitability (Net Income / Total Assets)	-0.01	0.05	1181
Size (ln(total assets))	6.57	6.64	1180
ROE	1.82	9.78	1181
Rival CAR	-0.004**	-0.002**	1181
Panel D: Industry Rivals - Matched out-of-sample			
Net Income (in millions)	319.01	27.76	173
Cash Flow (in millions)	508.73	56.66	173
Sales (in millions)	2853.76	600.11	173
Research and development (in millions)	180.21	17.00	173
Advertisement (in millions)	32.80	0.00	173
Total assets (in millions)	3691.19	744.32	173
Research and delvelopment / Sales	0.10	0.06	173
Advertisement / Sales	0.01	0.00	173
Profitability (Net Income / Total Assets)	0.03	0.05	173
Size (ln(total assets))	6.70	6.61	173
ROE	11.72	10.58	173
Rival CAR	-0.000	0.001	173

Table 2.4. Univariate analysis for bidder firms

Panel A provides the mean and median announcement returns for all bidder firms and for early-movers (EM), pioneers (P), followers (F), and late-movers (LM).
Panel B provides differences in means for the various types of bidder firms.
Panel C provides mean and median announcement returns and differences in means for sub-samples, categorized by type of bidder firm and level of R&D.
Panel D provides additional differences in means for sub-samples, categorized by type of bidder firm and level of R&D.
Panel E provides mean and median announcement returns and differences in means for sub-samples, categorized of by type of bidder firms and level of cultural distance.

***, **, * indicates significance at the 0.01, 0.05, and 0.10 level, respectively.

Panel A. Mean and median CARs

	All Bidder Firms (N = 173)		EM (N = 32)		P (N = 12)		F (N = 108)		LM (N = 33)	
Window	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
(-1,+1)	-0.677	-0.310	-2.084	-2.226 *	-0.03	-0.109	-0.928	-0.284	1.508	1.015
(0,+1)	-0.431	-0.531	-1.859	-1.095 **	-0.032	-0.01	-0.503	-0.558	1.192	0.690

Panel B. Differences in means by type of bidder firm

Window	EM vs LM	EM vs F	LM vs F	P vs F	P vs LM
(-1,+1)	-1.81 *	-0.65	1.44	0.79	-1.79 *
(0,+1)	-1.64	-0.79	1.02	1.03	-1.85 *

Panel C. Differences in mean by type of bidder firm and level of R&D

Window		Mean	Median		Mean	Median	ttest
(-1,+1)	EM all	-2.084	-2.226 *	LM Low R&D	1.722	1.304	-1.84 *
(0,+1)	N = 32	-1.859	-1.095 **	N = 30	1.383	0.707	-1.67
(-1,+1)	EM High R&D	-3.043	-1.086	LM Low R&D	1.722	1.304	-1.80 *
(0,+1)	N = 12	-3.172	-0.971	N = 30	1.383	0.707	-1.85 *
(-1,+1)	EM High R&D	-3.043	-1.086	LM High R&D	-0.632	0.260	-0.47
(0,+1)	N = 12	-3.172	-0.971	N = 3	-0.725	-1.088	-0.61
(-1,+1)	EM Low R&D	-1.509	-3.119	LM Low R&D	1.722	1.304	-1.38
(0,+1)	N = 20	-1.072	-1.202	N = 30	1.383	0.707	-1.08

Panel D. Sub-sample of CARs by type of bidder firm and level of R&D

		Mean	Median		Mean	Median	ttest
Full Sample							
(-1,+1)	High R&D	0.514	0.260	Low R&D	-0.842	-0.425	0.51
(0,+1)	N = 21	-0.012	-0.744	N = 152	-0.489	-0.408	0.20
EM							
(-1,+1)	High R&D	-0.030	-0.011	Low R&D	-1.509	-3.119	-0.47
(0,+1)	N = 12	-0.032	-0.001	N = 20	-1.072	-1.202	-0.72
F							
(-1,+1)	High R&D	0.082	0.025	Low R&D	-1.465 *	-0.566	1.37
(0,+1)	N = 6	0.067	0.034	N = 102	-0.925	-0.610	1.18
LM							
(-1,+1)	High R&D	-0.006	0.003	Low R&D	1.722	1.304	-0.54
(0,+1)	N = 3	-0.007	-0.011	N = 30	1.383	0.707	-0.48

Table 2.4. Univariate analysis for bidder firms (cont.)

Panel A provides the mean and median announcement returns for all bidder firms and for early-movers (EM), pioneers (P), followers (F), and late-movers (LM).
Panel B provides differences in means for the various types of bidder firms.
Panel C provides mean and median announcement returns and differences in means for sub-samples, categorized by type of bidder firm and level of R&D.
Panel D provides additional differences in means for sub-samples, categorized by type of bidder firm and level of R&D.
Panel E provides mean and median announcement returns and differences in means for sub-samples with high levels of cultural distance, categorized of by type of bidder firms.

***, **, * indicates significance at the 0.01, 0.05, and 0.10 level, respectively.

Panel E. Sub-sample of CARs of by type of bidder firm when the level of cultural distance is high

Window		Mean	Median		Mean	Median	ttest
(-1,+1)	EM	-4.685 ***	-4.425	F	-1.312	-0.232	-2.18 **
(0,+1)	N = 4	-2.222	-2.265	N = 19	-0.509	-1.047	-0.90
(-1,+1)	EM	-4.685 ***	-4.425	LM	5.108 *	6.879	-4.24 ***
(0,+1)	N = 4	-2.222	-2.265	N = 5	0.703	-0.241	-0.76
(-1,+1)	LM	5.108 *	6.879	F	-1.312	-0.232	2.13 **
(0,+1)	N = 5	0.703	-0.241	N = 19	-0.509	-1.047	0.37

Table 2.5. Univariate analysis for rival firms

Panel A provides the mean and median announcement returns for all rival firms and for rivals of early movers (REM), followers (RF), and late movers (RLM).
Panel B provides differences in means for the various types of bidder firms.
Panel C provides mean and median announcement returns and differences in means for sub-samples, categorized of by type of bidder firm and level of cultural distance.

***, **, * indicates significance at the 0.01, 0.05, and 0.10 level, respectively.

Panel A. Mean and median CARs

	All rival firms		Rivals to early-movers (REM)		Rivals to followers (RF)		Rivals to late-movers (RLM)	
Window	Mean	Median	Mean	Median	Mean	Median	Mean	Median
(-1,+1)	-0.348 *	-0.164 **	-0.356	-0.255	-0.537 **	-0.301 ***	0.229	0.371
(0,+1)	-0.239	-0.287 ***	-0.174	-0.590 *	-0.434 **	-0.520 ***	0.304	0.255

Panel B. Differences in mean by type of rival firm

Window	REM vs RLM	REM vs RF	RLM vs RF
(-1,+1)	-1.17	0.43	1.75 *
(0,+1)	-1.19	0.69	2.22 **

Panel C. Sub-sample of CARs by type of rival firm and level of cultural distance

Window		Mean	Median		Mean	Median	ttest
	High CD			**Low CD**			
(-1,+1)	All Rivals	-1.676 ***	-0.570 ***	All Rivals	-0.208	-0.113	-2.39 **
(0,+1)		-1.412 ***	-0.779 ***		-0.115	-0.218 ***	-2.55 **
(-1,+1)	REM	-3.314 **	-2.100 ***	REM	-0.131	0.005	-2.40 **
(0,+1)		-1.882 *	-1.145		-0.045	-0.531	-1.51
(-1,+1)	RF	-1.843 **	-0.418 **	RF	-0.385	-0.281 **	-1.83 *
(0,+1)		-1.280 *	-0.575 *		-0.336	-0.520 ***	-1.27
(-1,+1)	RLM	-0.065	0.631	RLM	0.258	0.359	-0.25
(0,+1)		-1.598 **	-0.873 *		0.487*	0.282 **	-2.28 **

ttest Window	REM vs RF	REM vs RLM	RLM vs RF	REM vs RF	REM vs RLM	RLM vs RF
(-1,+1)	-1.05	-2.03 **	1.33	0.58	-0.74	1.39
(0,+1)	-0.49	-0.23	-0.31	0.75	-1.26	2.37 **

Table 2.6. Bidder firm regression

This table shows the results of three ordinary least square regressions to explain the bidder firms' 3-day CAR during a cross-border M&A announcement. Model 1 focuses on early movers, Model 2 focuses on followers, and Model 3 focuses on late movers. CD measures the cultural distance index, RD measures R&D expenses relative to sales in the year prior to the announcement, Cash is a dummy variable equal to 1.0 if the acquisition is completely financed using cash, RelSize is the acquisition value relative to the natural log of the bidder firms total assets in the year prior to the announcement, Profit is the annual income divided by total assets in the year prior to the announcement, EM is a dummy variable equal to 1.0 is the bidder is an early-mover, F is a dummy variable equal to 1.0 if the bidder is a follower, LM is a dummy variable equal to 1.0 if the bidder is a late-mover, and Expansion is a dummy variable equal to 1.0 if the announcement took place in an expansionary economy. We further include interaction terms between bidder type and level of R&D expenses, and between bidder type, level of R&D expenses, and level of cultural distance.

	Model 1		Model 2		Model 3	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	-0.0760	-3.31***	-0.0581	-2.30**	-0.0790	-3.63***
CD	-0.0165	-1.07	0.0005	0.03	-0.0127	-0.83
RD	0.0513	0.59	-0.1709	-2.48**	-0.0114	-0.16
Cash	0.0278	1.68*	0.03343	2.07**	0.0303	1.87*
RelSize	-0.0001	-1.18	-0.0001	-1.57	-0.0001	-1.70*
Profit	-0.0321	-0.55	-0.0348	-0.62	-0.0165	-0.26
Exrate	0.0151	2.21**	0.0103	1.57	0.0125	1.80*
EM	0.0208	1.09				
EM*RD	-0.2656	-2.13**				
EM*RD*CD	-0.1450	-0.69				
F			-0.0380	-2.67***		
F*RD			0.3405	2.48***		
F*RD*CD			-0.1535	-1.82*		
LM					0.0284	1.70*
LM*RD					-0.0196	-0.10
LM*RD*CD					0.0143	0.07
Expansion	0.0411	2.38**	0.0474	2.41**	0.0440	2.80***
N	173		173		173	
Adj. R^2	8.63%		9.67%		6.91%	
F-Statistic	3.34***		3.43***		2.43**	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 2.7. Bidder firm regression, including additional control variables

This table shows the results of seven ordinary least square regressions to explain the bidder firms' 3-day CAR during a cross-border M&A announcement. All models focus on early movers and late movers compared to followers. Models 1 through 6 control for the legal environment (see LLSV), and Model 7 controls for the bidder firms' previous experience overseas. Specifically, Models 1 through 3 control for the type of law in the target country (civil law versus common law), Models 4 through 6 control for the level of investor protection in the target country, measured by the corruption index, and Model 7 controls for previous bidder firm experience in the target country and its geographic area. The variables used in these regressions are defined in Table 1.

	Model 1		Model 2		Model 3	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	-0.0762	-3.32***	-0.0566	-2.23**	-0.0785	-3.61***
CD	-0.0351	-1.82*	-0.0173	-0.83	-0.0275	-1.45
RD	0.0468	0.54	-0.1835	-2.57**	-0.0173	-0.24
Cash	0.0264	1.59	0.0322	1.99**	0.0292	1.80*
RelSize	-0.0001	-1.05	-0.0001	-1.46	-0.0001	-1.60
Profit	-0.0339	-0.57	-0.0350	-0.61	-0.01644	-0.26
Exrate	0.0175	2.58**	0.0124	1.88*	0.0142	2.06**
EM	0.0235	1.21				
EM*RD	-0.2667	-2.12**				
EM*RD*CD	-0.2239	-1.05				
F			-0.0398	-2.78***		
F*RD			0.3490	2.54**		
F*RD*CD			-0.1512	-1.80*		
LM					0.0295	1.77*
LM*RD					-0.0141	-0.08
LM*RD*CD					-0.0222	-0.10
Expansion	0.0391	2.25**	0.0458	2.32**	0.0425	2.67***
Civil	0.0293	1.12	0.0263	1.05	0.0234	0.88
N	173		173		173	
Adj. R^2	9.20%		10.14%		7.29%	
F-Statistic	3.43***		3.49***		2.29**	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 2.7. Bidder firm regression, including additional control variables (cont.)

This table shows the results of seven ordinary least square regressions to explain the bidder firms' 3-day CAR during a cross-border M&A announcement. All models focus on early movers and late movers compared to followers. Models 1 through 6 control for the legal environment (see LLSV), and Model 7 controls for the bidder firms' previous experience overseas. Specifically, Models 1 through 3 control for the type of law in the target country (civil law versus common law), Models 4 through 6 control for the level of investor protection in the target country, measured by the corruption index, and Model 7 controls for previous bidder firm experience in the target country and its geographic area. The variables used in these regressions are defined in Table 1.

	Model 4		Model 5		Model 6		Model 7	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	-0.2021	-1.20	-0.2136	-1.29	-0.2090	-1.24	-0.0953	-2.71***
CD	-0.0146	-1.02	0.0039	0.28	-0.0099	-0.79	0.0170	1.17
RD	0.0572	0.65	-0.1617	-2.26**	-0.0054	-0.08	0.0291	1.22
Cash	0.0296	1.75*	0.0358	2.18**	0.0321	1.95*	0.0366	2.38**
RelSize	-0.0001	-1.24	-0.0001	-1.62	-0.0001	-1.73*	-0.0001	-1.52
Profit	-0.0333	-0.56	-0.0365	-0.64	-0.0182	-0.29	-0.0549	-1.11
Exrate	0.0120	2.16**	0.0065	1.25	0.0092	1.71*	0.0158	2.18**
EM	0.0208	1.08					-0.0394	-1.80*
EM*RD	-0.2666	-2.14**						
EM*RD*CD	-0.1280	-0.60						
F			-0.00379	-2.62***				
F*RD			0.3435	2.52**				
F*RD*CD			-0.1618	-1.97*				
LM					0.0282	1.66*	0.0200	1.11
LM*RD					-0.0144	-0.08		
LM*RD*CD					-0.0261	-0.14		
Expansion	0.0431	2.41**	0.0498	2.42**	0.0461	2.76***	0.0313	1.11
Corruption	0.0132	0.79	0.0163	0.99	0.0137	0.82		
Prior							0.0301	1.74*
N	173		173		173		121	
Adj. R^2	8.96%		10.17%		7.27%		7.30%	
F-Statistic	3.07***		3.08***		2.21**		1.96**	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 2.8. Rival firm regression

This table shows the results of three ordinary least square regressions to explain the rival firms' 3-day CAR during a cross-border M&A bidder announcement.
Panel A focuses on rivals of early-movers.
Panel B focuses on rivals of followers.
Panel C focuses on rivals of followers and late-movers compared to rivals of early-movers.
The variables used in these regressions are defined in Table 1.

Panel A	Model 1		Model 2		Model 3	
Variables	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	0.0145	1.63	0.0170	1.91*	0.0168	1.90*
CAR	0.1257	6.98***	0.1362	7.38***	0.1366	7.41***
CD	-0.0104	-2.46**	-0.0105	-2.50**	-0.0104	-2.48**
RD	-0.0141	-1.19	-0.0434	-2.62***	-0.0429	-2.66***
RD*CD	0.0137	0.26	0.0781	1.36	0.0754	1.33
Cash	-0.0023	-0.66	-0.0030	-0.86	-0.0028	-0.80
Exchange	0.0847	1.82*	0.0805	1.73*	0.0785	1.69*
Profit	-0.0006	-0.04	-0.0081	-0.55	-0.0087	-0.59
RProfit	0.0091	1.50	0.0091	1.51	0.0091	1.50
Expansion	-0.0132	-2.31**	-0.0139	-2.43**	-0.0137	-2.40**
RPrior	-0.0080	-1.29	-0.0085	-1.38	-0.0086	-1.39
EM	0.0153	2.83***	0.0115	2.06**	0.0115	2.07**
EM*RD			0.0386	2.51**		
EM*RD*CD					0.3266	2.61***
N	997		997		997	
Adj. R^2	4.90%		5.41%		5.46%	
F-Statistic	5.67 ***		5.75 ***		5.79 ***	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 2.8. Rival firm regression (cont.)

This table shows the results of three ordinary least square regressions to explain the rival firms' 3-day CAR during a cross-border M&A bidder announcement.
Panel A focuses on rivals of early-movers.
Panel B focuses on rivals of followers.
Panel C focuses on rivals of followers and late-movers compared to rivals of early-movers.
The variables used in these regressions are defined in Table 1.

Panel B	Model 1		Model 2		Model 3	
Variables	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	0.0152	1.69*	0.0184	2.03**	0.0182	2.01**
CAR	0.1137	6.56***	0.1312	7.14***	0.1313	7.15***
CD	-0.0096	-2.25**	-0.0098	-2.32**	-0.0097	-2.30**
RD	-0.0073	-0.64	-0.0022	-0.19	-0.0463	-2.60***
RD*CD	0.0048	0.09	0.0916	1.52	0.4596	2.74***
Cash	-0.0026	-0.73	-0.0038	-1.06	-0.0036	-1.00
Exrate	0.0668	1.39	0.0614	1.28	0.0588	1.23
Profit	0.0113	0.80	-0.0012	-0.08	-0.0015	-0.10
RProfit	0.0093	1.54	0.0094	1.56	0.0093	1.55
Expansion	-0.0082	-1.43	-0.0109	-1.89*	-0.0107	-1.85*
RPrior	-0.0063	-1.01	-0.0073	-1.18	-0.0073	-1.18
F	-0.0072	-1.92*	-0.0043	-1.12	-0.0044	-1.14
F*RD			-0.0456	-2.80***		
F*RD*CD					-0.3733	-2.85***
N	997		997		997	
Adj. R^2	4.49%		5.15%		5.17%	
F-Statistic	5.25 ***		5.50 ***		5.53 ***	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

Table 2.8. Rival firm regression (cont.)

This table shows the results of three ordinary least square regressions to explain the rival firms' 3-day CAR during a cross-border M&A bidder announcement.
Panel A focuses on rivals of early-movers.
Panel B focuses on rivals of followers.
Panel C focuses on rivals of followers and late-movers compared to rivals of early-movers.
The variables used in these regressions are defined in Table 1.

Panel C	Model 1		Model 2		Model 3	
Variables	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	0.0293	2.60***	0.0310	2.72***	0.0308	2.71***
CAR	0.1253	6.89***	0.1414	7.38***	0.1417	7.41***
CD	-0.0103	-2.42**	-0.0105	-2.48**	-0.0105	-2.46**
RD	-0.0140	-1.19	-0.0072	-0.57	-0.0521	-2.89***
RD*CD	0.0144	0.28	0.0984	1.63	0.4768	2.80***
Cash	-0.0024	-0.67	-0.0035	-0.97	-0.0032	-0.91
Exrate	0.0825	1.70*	0.0777	1.60	0.0754	1.55
Profit	0.0002	0.01	-0.0114	-0.73	-0.0120	-0.76
RProfit	0.0090	1.50	0.0091	1.51	0.0091	1.50
Expansion	-0.0129	-2.10**	-0.0151	-2.44**	-0.0149	-2.41**
RPrior	-0.0079	-1.26	-0.0088	-1.41	-0.0089	-1.42
LM	-0.0146	-2.07**	-0.0133	-1.84*	-0.0133	-1.85*
LM*RD			-0.0117	-0.42		
LM*RD*CD					-0.1135	-0.51
F	-0.0154	-2.83***	-0.0118	-2.09**	-0.0118	-2.10**
F*RD			-0.0459	-2.76***		
F*RD*CD					-0.3828	-2.84***
N	997		997		997	
Adj. R^2	4.81%		5.35%		5.39%	
F-Statistic	5.19 ***		5.02 ***		5.06 ***	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

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Appendix A

Appendix A: Hofstede's Cultural Dimension

Geert Hofstede's cultural dimensions as described on his Web site, http://www.geert-hofstede.com.

Power Distance Index (PDI) focuses on the degree of equality, or inequality, between people in the country's society. A High Power Distance ranking indicates that inequalities of power and wealth have been allowed to grow within the society. These societies are more likely to follow a caste system that does not allow significant upward mobility of its citizens. A Low Power Distance ranking indicates the society de-emphasizes the differences between citizen's power and wealth. In these societies equality and opportunity for everyone is stressed.

Individualism (IDV) focuses on the degree the society reinforces individual or collective achievement and interpersonal relationships. A High Individualism ranking indicates that individuality and individual rights are paramount within the society. Individuals in these societies may tend to form a larger number of looser relationships. A Low Individualism ranking typifies societies of a more collectivist nature with close ties between individuals. These cultures reinforce extended families and collectives where everyone takes responsibility for fellow members of their group.

Masculinity (MAS) focuses on the degree the society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power. A High Masculinity ranking indicates the country experiences a high degree of gender differentiation. In these cultures, males dominate a significant portion of the society and power structure, with females being controlled by male domination. A Low Masculinity ranking indicates the country has a low level of differentiation and discrimination between genders. In these cultures, females are treated equally to males in all aspects of the society.

Uncertainty Avoidance Index (UAI) focuses on the level of tolerance for uncertainty and ambiguity within the society - i.e. unstructured situations. A High Uncertainty Avoidance ranking indicates the country has a low tolerance for uncertainty and ambiguity. This creates a rule-oriented society that institutes laws, rules, regulations, and controls in order to reduce the amount of uncertainty. A Low Uncertainty Avoidance ranking indicates the country has less concern about ambiguity and uncertainty and has more tolerance for a variety of opinions. This is reflected in a society that is less rule-oriented, more readily accepts change, and takes more and greater risks.

About the Author

Tanja Steigner received her Bachelor's Degree in Business Administration with a concentration in Finance from Georg-Simon-Ohm Fachhochschule in Nuremberg, Germany, in 2001. Participating in a foreign exchange program, she studied for three semesters at Georgia State University in Atlanta, Georgia.

In 2001, Tanja moved to Tampa, Florida, and entered the Ph.D. program at the University of South Florida. While studying at USF, she worked on a Real Options research project for the Center of Urban Transportation Research, and was a research assistant and instructor for the Department of Finance. She further coauthored research published by the Journal of Applied Financial Economics in 2007, and made several paper presentations at the FMA, SFA, and MFA annual meetings.

Tanja's research is in corporate finance, with a special interest in cross-border mergers and acquisitions. Her teaching experience includes classes such as Principles of Finance, Investments, International Finance, Money and Banking, and Personal Finance.