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Cross-border acquisitions of US financial institutions: Impact of macroeconomic factors

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Abstract

This study investigates the impact of mergers and acquisitions on US bidders and targets involved in cross-border mergers of financial institutions. The findings indicate that while US targets experience positive significant wealth gains, US bidders encounter insignificant wealth gains during the merger announcements. There are also differences in wealth gains with respect to industry classification and to the regional location of foreign targets and bidders. The macroeconomic variables, including foreign and US economic conditions, level of economic development of target country, exchange rate volatility along with the effectiveness of foreign government, relative size of participants, and control of target largely explain the wealth gains to bidders and targets.

JEL classification: G14; G15; G20; G34
Keywords: International mergers and acquisitions; Financial institutions; Wealth effects

1. Introduction

The financial services industry has experienced an intensive period of reorganization and consolidation. Failures of financial institutions in several countries have forced market deregulation, increased disintermediation, higher interest rate volatility, and intensified competition for available funds and services. Consolidations in

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the US and in international markets have been attracting the attention of policymakers, financial press, and researchers. There is also an increasing trend toward cross-country mergers and acquisitions (M&As) involving universal institutions that provide multiple types of financial services in multiple countries. The motivations for these activities include changes in government policy and regulation (e.g., Riegle–Neal Act in the US and the Single Market Programme in the European Union), the existence of economic rationales for restructuring, the increase in the general level of economic integration and volume of trade across national borders, undervaluation of institutions relative to their replacement value, and the existence of strong financial markets where these M&As activities can be financed. Economic rational is based on the belief that gains can accrue via reduction in expenses, increases in market power, increases in scale and scope of economies, and reduction in earning volatility. Shareholders wealth tends to be increased in those cases where the motivations for mergers are the most likely to be fulfilled. The literature on domestic mergers is replete with studies that evaluate the impact of mergers on the participating firms and investigate motives behind these mergers. While most empirical studies report significantly positive wealth gains for targets, wealth gains for bidders have in general been found to be negative. [1]

The wealth effects of cross-border mergers, [2] however, may be greater/less than those of domestic mergers because cross-border mergers provide both new potential benefits and costs. It may be value additive if foreign institutions operate more efficiently than domestic institutions. Furthermore, value addition may be a result of differences in the general level of economic activities among nations and increase in demand for international financial services created by an increase in the volume of international commerce, or issuance of international debt and equity securities. [3] For example, Focarelli and Pozzolo (2001) argue that the most important factors driving foreign direct investment in banking are growth of the host market and the potential for diversification.

If domestic institutions, on the other hand, were more efficient than foreign institutions as a result of being able to operate and monitor operations closely, then the wealth gains created by cross-border mergers would be less than those created by domestic counterparts. In general, variations in wealth effects of cross-border mergers may arise from segmentation in international financial and product markets resulting from differences in, among other things, tax structures, the market for corporate control, government regulations, technology, and the greater ability of acquiring firms to use to their strategic advantages. Since some of these factors are more pronounced in the highly regulated financial services industry, one would expect the

[1] Cornett and Tehranian (1992), Hannan and Wolken (1989), Zhang (1995), and Houston and Ryngaert (1994), on average, report wealth gains of 9% to targets and −3% to bidders in domestic studies involving financial institutions.

[2] Berger et al. (2000) provide an excellent review of several research studies on causes and consequences of the global consolidation of financial institutions.

[3] The share of trade in goods as a percentage of World GDP has increased from around 20% in the late 1980s to over 30% in the late 1990s.

wealth gains in cross-border mergers of financial institutions to be different than those of domestic financial firms.

The primary objective of this study is to investigate the impact of mergers and acquisitions on US bidders and targets involved in cross-border mergers of financial institutions. This study, further, explores the differences in wealth gains to US bidders and targets with respect to the geographic location of foreign targets and bidders and industry classification of participants. Finally, this study investigates the factors explaining the wealth gains to targets and bidders.

The findings of this study show that on average US targets experience statistically significant wealth gains during merger announcements while US bidders have insignificant positive wealth gains. While the results for the target sample are in line with domestic merger studies, the bidder results are contrary to most of the domestic merger studies. Detailed analysis of wealth gains, based on the geographic location and industry classification of targets and bidders, show that US bidders experience significant wealth gains from acquisitions in Latin American region while US targets receive the highest premium in acquisitions by Canadian bidders. US bidders classified as investment companies experience the highest wealth gains while US targets in depository/non-depository institutions group have the highest wealth gains.

Cross-sectional regression results indicate that macroeconomic variables such as foreign and US economic conditions, level of economic development of target country, and exchange rate volatility all play a significant role in explaining these wealth gains. There are inverse relationships between wealth gains to US bidders and foreign economic conditions, exchange rate volatility, and cash payments. The wealth gains to US bidders are higher when the acquisitions take place in developing countries and Latin American region, when the bidder is an investment company, when the target-country government is perceived to be more effective, and when the bidder takes control of target. US targets experience higher wealth gains when US economic conditions are more favorable than in the foreign bidder country and when the relative size ratio of bidder to target is larger.

The paper is organized as follows. Section 2 outlines the previous empirical studies. Section 3 describes the sample selection and methodology. Section 4 presents and analyzes the wealth impacts of mergers and acquisitions on both US targets and bidders, and the determinants of the wealth gains. The last section concludes the paper.

2. Literature review

The literature on domestic mergers is replete with studies that evaluate the impact of mergers on both participants. The empirical studies on financial institutions have used both accounting data and stock price reaction. Berger and Humphrey (1992), for example, examine mergers and acquisitions in the banking industry during the 1980s by using accounting data. They report that mergers lead to no significant gains in efficiency. DeYoung (1993) uses a similar approach to value mergers and reports no cost saving benefits from the mergers. Akhavein et al. (1997) report that banking organizations significantly improve their profit efficiency following mergers.

Some of the studies also focus on total expenses and non-interest expenses. Among them, Rhoades (1993) analyzes several performance measures and ties them to type of mergers. His findings indicate that cost reductions and efficiency gains were not significantly related horizontal mergers. Linder and Crane (1993) also investigate the operating performances of intrastate mergers and report that mergers did not improve operating income. One study, Ely and Song (2000) uses accounting data and finds increased operational efficiency following mergers.

Another stream of research compares performances of financial institutions in various countries. [4] The results of these studies (e.g., Berg et al., 1993; Allen and Rai, 1996, among others) show that there are substantial differences among the efficiency of financial institutions operating in different countries. For example, Swedish banks are identified as superior performers. A group of studies (e.g., Chang et al., 1998; DeYoung and Nolle, 1996; Berger et al., 2000) also investigated the efficiency of foreign and domestic institutions within the same country. The findings show that foreign-owned banks are less efficient than domestic banks.

Studies using the stock market data to analyze the impact of mergers on participants usually fail to find total gains from consolidation. For example, Houston and Ryngaert (1994) examine the wealth gains from domestic bank mergers. Their result shows that while bidders suffer a loss, targets experience wealth gains. These results are parallel to other domestic merger studies. Madura and Wiant (1994) find that bidders suffer an abnormal negative return, which may be a result of the high offer price. They further report negative abnormal returns occurring in the months after the announcements. They attribute this to the market revising downward its expectations from the merger. Zhang (1995) reports contradicting results compared to those of most event studies. Using a sample of 107 mergers during the 1980–1990 period, the author finds a significant wealth creation. Although most of the wealth gains accrue to target shareholders, the shareholders of the bidders experience positive wealth gains as well. Siems (1996) and Frames and Lastrapes (1998) report that bidders, on average, experience negative abnormal returns and target firms experience positive abnormal returns. In general, existing studies on domestic mergers of financial institutions report statistically significant wealth gains (9% on average) to targets and wealth loss (−3% on average) to bidders.

There are numerous studies analyzing international mergers and acquisitions of non-financial firms. Among them Vasconcellos et al. (1990) and Connell and Conn (1993) examine the mergers between US and UK firms. Chen et al. (1991) study US–China joint ventures. Kang (1993), and Pettway et al. (1993) focus on mergers between US and Japanese firms. Fatemi (1984), Doukas and Travlos (1988), and Markides and Ittner (1994) probe US firms engaged in foreign acquisitions, while Harris and Ravenscraft (1991) and Cebenoyan et al. (1992) investigate US targets of foreign firms. Cakici et al. (1996) examine wealth effects of US bidders acquiring foreign firms versus foreign bidders acquiring US firms and they report that cross-

[4] Berger et al. (2000) provide an extensive review of these studies.

country differences play an important role in explaining wealth effects. Kiymaz and Mukherjee (2000) also report that there are differences in wealth gains depending on the country of affiliation of merging firms and the gains are inversely related to the degree of economic co-movements of the two countries. International merger studies involving non-financial firms generally report that wealth gains to US targets are significantly higher than domestic counterparts and wealth gains to US bidders are mostly positive.

There are only a few studies investigating the wealth gains of financial institutions in an international setting. Waheed and Mathur (1995) investigate the impact of foreign expansion on the market value of US banks during the 1963–1989 period. Their findings indicate that US banks experience significant changes in wealth when they announce plans to engage in foreign expansion. They report that abnormal returns are significantly negative when banks announce expansion into developed countries, but are significantly positive when these banks announce expansion into developing countries. Biswas et al. (1997) compare the wealth effects of domestic bidders (targets) with those of foreign bidders (targets) involved in acquisitions of financial firms during the 1977–1987 period. Their results show significant differences between domestic and international mergers. While domestic acquisitions experience a significant loss of 0.39%, international acquisitions do not experience a loss. Their results support the existence of benefit to international diversification. Furthermore, they indicate that in terms of dollar values, international mergers are net wealth creating activities that result in an equitable division of wealth between bidders and targets.

Vennet (1996) investigates whether mergers and acquisitions improve the performance of participants by examining EC credit institutions over the 1988–1993 period. The acquisition of a foothold presence for the purpose of potential growth in foreign markets appears to be a major reason for international acquisitions. Cybo-Ottone and Murgia (2000) examine wealth effects in the European banking industry during the 1988–1997 period and document that returns to both the targets and bidders are positive, a result that is contrary to the wealth effects' results found for US bank mergers. The authors attribute their findings to the different structure and regulation of the EU banking market. Berger et al. (2000) provide an extensive review of studies on the causes and consequences of cross-border consolidation of financial institutions along with the recent trends in cross-border M&As. They compare financial systems in different nations and analyze cross-border banking efficiency in five different countries. On average, they find that domestic banks have both higher cost efficiency and profit efficiency than foreign banks operating in the countries under consideration. An implication of this finding is that efficiency considerations may limit the global consolidation of the financial services industry.

The current study examines the wealth effects on US financial firms engaged either as bidders or as targets in international mergers during the period of 1989–1999. It aims to fill a void in the literature by providing evidence on wealth gains to US bidders and targets and factors influencing such gains from cross-border acquisitions of financial institutions.

3. Data and methodology

3.1. Sample selection and characteristics

Panel A of Table 1 provides data on the sample selection of US targets and bidders. The *Mergers and Acquisitions* reports 355 US targets and 391 US bidders involved in international mergers and acquisitions of financial institutions during the study period of 1989–1999. The sample includes depository institutions, non-

Table 1
Sample selection and the selected characteristics of US bidders and targets

	US bidders	US targets
Panel A: Sample selection		
M&As reported	391	355
Less: No data/news and other news	184	285
Net sample	207	70
Panel B: Frequency by region		
Region		
Europe	115 (55%)	45 (64%)
Far East Asia	26 (13%)	9 (12%)
Latin America	31 (15%)	–
North America (Canada)	26 (13%)	16 (22%)
Others	9 (4%)	–
Total	207 (100%)	70 (100%)
Panel C: Frequency by industry classifications		
SIC6061	50 (24%)	23 (33%)
SIC62	30 (15%)	14 (20%)
SIC6364	96 (46%)	24 (34%)
SIC67	31 (15%)	9 (13%)
Total	207 (100%)	70 (100%)
Panel D: Frequency by years		
1989	2 (1%)	7 (10%)
1990	10 (5%)	6 (9%)
1991	10 (5%)	4 (6%)
1992	6 (3%)	1 (1%)
1993	11 (5%)	5 (7%)
1994	18 (9%)	9 (13%)
1995	16 (8%)	6 (9%)
1996	26 (13%)	8 (11%)
1997	33 (16%)	6 (9%)
1998	51 (24%)	10 (14%)
1999	24 (11%)	8 (11%)
Total	207 (100%)	70 (100%)

depository institutions (SIC6061), broker/security dealers (SIC62), insurance companies (SIC6364), and investment companies (SIC67). The following screening is applied to both the US target and bidder sample: First, the sample is limited to firms with stock price data available on the CRSP database. Second, the announcement date must be obtainable in *The Wall Street Journal*. [5] Third, there must be no contaminating corporate announcements within five business days before and after the event day. The final usable sample consists of 207 foreign acquisitions by US bidders and 70 acquisitions of US targets.

Panel B of Table 1 reports the distribution of the sample by location of foreign bidder or target. In terms of US firms' foreign targets, Europe ranks first with 115 (55%) acquisitions followed by 31 (15%) acquisitions in Latin America and 26 (13%) acquisitions in each of North America (Canada) and Far East Asia. Similarly, in terms of foreign bidders' of US targets, Europe ranks first with 45 (64%) acquisitions followed by 16 (22%) acquisitions by North America (Canada) and 9 (22%) acquisitions by Far East Asia firms.

Panels C and D of Table 1 outline the sample distribution based on industry classification and the year of acquisition. Panel C reports that the most frequent US acquisitions (96) occurred in the insurance industry (SIC6364) followed by depository and non-depository institutions (SIC6061) with (50) acquisitions. Similar patterns are observed for the US target sample. Panel D reports that the largest number of acquisitions (51) occurred in 1998 followed by 33 in 1997, 26 in 1996, and 24 in 1999.

The stock price data is obtained from the CRSP daily return database. Information on the type of payments for each transaction and the degree of control over the target are obtained from the *Merger and Acquisitions* (various issues). The data on the exchange rates and GNPs are obtained from the *International Financial Statistics (IFS)* CDROM. The financial statements of firms are gathered from *FIS Online*. T-bill rates are obtained from the Federal Reserve Bank of St. Louis.

3.2. Methodology

Standard event study methodology (Brown and Warner, 1985) is used to measure the effect of acquisitions announcements on participating firms. The following single and two-factor market models are employed in estimation:

$$R_{i,t} = \alpha_i + \beta_{i,D} \cdot R_{D,t} + \varepsilon_{i,t}, \tag{1}$$

$$R_{i,t} = \alpha_i + \beta_{i,D} \cdot R_{D,t} + \beta_{i,\mathrm{INT}} \cdot R_{\mathrm{INT},t} + \varepsilon_{i,t}, \tag{2}$$

where

$R_{i,t}$ the rate of return on security i on day t,
$R_{D,t}$ the rate of return on the market value weighted CRSP Index,
$\beta_{i,D}$ the slope of the regression line of the firm i's returns against the returns on the market value CRSP Index,

[5] We assume that the news occurs when the merger is first announced in the Wall Street Journal.

$R_{\mathrm{INT},t}$ the change in 3-month US T-bill rate,
$\beta_{i,\mathrm{INT}}$ the slope of the regression line of the firm i's returns against the change in three-month US T-bill rate,
α_i the intercept term,
$\varepsilon_{i,t}$ the residuals.

An abnormal return (wealth effect) for common stock of firm i on day t is defined as

$$AR_{i,t} = R_{i,t} - \widehat{R}_{i,t}, \tag{3}$$

where

$$\widehat{R}_{i,t} = \hat{\alpha}_i + \hat{\beta}_{i,D} \cdot R_{D,t} \tag{4}$$

or

$$\widehat{R}_{i,t} = \hat{\alpha}_i + \hat{\beta}_{i,D} \cdot R_{D,t} + \hat{\beta}_{i,\mathrm{INT}} \cdot R_{\mathrm{INT},t} \tag{5}$$

in which α_i, $\beta_{i,D,}$ and $\beta_{i,\mathrm{INT}}$ are estimated market model parameters obtained by using the pre-estimation period ($t = -316$ to -61).

3.3. Factors influencing wealth effects

Several studies have examined the issue of determinants of abnormal returns for non-financial firms in the context of domestic mergers. (e.g., Asquith et al., 1983; Travlos, 1987; Kaufman, 1988; Jarrell and Poulsen, 1989; Hayne, 1989; Johnson and Abbott, 1991; Servaes, 1991). Method of payment, relative size of target, and previous ownership are the most widely cited factors explaining wealth gains in domestic mergers. [6] A number of studies, although much fewer in number than their domestic counterparts, have examined the same issue in the context of international mergers (e.g., Harris and Ravenscraft, 1991; Kang, 1993; Markides and Ittner, 1994; Cakici et al., 1996; Kiymaz and Mukherjee, 2000). The factors cited as indication of higher wealth gains to participants include relatively stronger currency, previous corporate involvement in the foreign country, and a lower GNP growth correlation of the countries involved.

The following factors are cited as reasons for international mergers involving financial institutions: risk diversification, innovation, additional source of obtaining funds, and regulatory avoidance. Among existing studies, Waheed and Mathur (1995) report that the mode of entry (representative office versus formation of joint venture versus acquisition), prior overseas experience, and the level of economic development in the home country are important factors impacting the wealth effects

[6] These studies report that the wealth gains are significantly higher to bidder and target in cash offers than in exchange of stock offers. Asquith et al. (1983), Jarrell and Poulsen (1989), and Houston and Ryngaert (1994) report that wealth gains to bidders increase significantly as the target size increases relative to the bidder size.

from mergers. The wealth gains are significantly positive following announcements related to branch opening, especially when the financial institution has a higher level of overseas experience or is expanding into developing countries. The wealth gains are negative when the form of expansion is a joint venture or the expansion is into a developed country. Biswas et al. (1997) also report higher wealth gains to the bidders with previous involvement in the host country, using cash payments, and obtaining controlling interest of the target.

This study focuses on macroeconomic variables (economic conditions and exchange rates), geographical and industry affiliation variables, and cultural and other variables (language, government effectiveness, the form of payment, relative size, and control of target) to explain the wealth gains to US bidders and targets involved in international mergers of financial institutions.

3.3.1. Macroeconomic variables

One of the reasons for the international involvement of a firm is saturation of its home market. If the home market is maturing, a firm has an economic incentive to expand internationally (e.g., seek new opportunities). The countries with favorable economic conditions (e.g., expanding economies) are more likely to be a focus for expansion. For example, Vennet (1996) argues that an acquisition of a foothold presence for the purpose of potential growth in foreign markets is a major reason for international acquisitions. To measure the impact of economic conditions, three variables are used.

First, the foreign economic condition (FORECO) variable approximates the local economic conditions of the target country and is defined as the target country's GNP growth in the year prior to the announcement of the merger minus the average GNP growth rate of the target country during the study period, divided by the average GNP growth rate of the target country during the study period. FORECO is used as an explanatory variable for US bidder sample. The US economic condition (USECO) variable is also constructed in a similar way to FORECO and is used as an explanatory variable for the US target sample. The USECO variable is expected to be directly related to the wealth gain to the US target, indicating that the better the economic conditions in the US, the more negotiation power US targets would have, and the higher the premium the foreign bidder would likely have to pay to acquire the US target. The FORECO variable, on the other hand, may be directly or inversely related to the wealth gain of US bidder. If the US bidder were expected to gain market share and increase cash flow, then the impact would be positive. But at the same time, given favorable economic conditions in the host market, foreign target may force the bidder to pay a higher premium and/or the US bidder may become over-optimistic about the potential benefits and pay a higher premium to acquire the foreign target. Overpayment for an acquisition will translate into negative wealth gains to bidder. For example, Madura and Wiant (1994) conclude that negative abnormal returns to a bidder may be a result of offering a higher price to acquire the target.

Second, GNPGCOR variable is constructed by following Kiymaz and Mukherjee (2000). It is defined as the correlation between the annual growth rates in GNPs of

the two countries over a 10-year period ending in the year before the merger. [7] Kiymaz and Mukherjee argue that the degree of divergence affects the extent to which the economies of two countries move together (i.e. the greater the differences, the lesser the co-movements). The purpose of this measure is to capture the difference between the business cycles in the countries of merging firms. Thus this measure proxies country diversification and cross-country variations in abnormal returns are inversely related to the extent of such co-movements.

Third, a dummy variable is used to take into account the level of economic development within the target country. Waheed and Mathur (1995) report that expansion into developing countries yields higher wealth gains to the bidder. By using the IMF's classification, target countries are classified into two groups: developed and developing countries. DEVELOP is equal to one if the target country is considered a developing economy and zero if the target country is considered developed country. Because of the lack of competition in the market and the opportunity for bidders to use their expertise to generate revenues, wealth gains are expected to be higher when the destination country is a developing country. This variable is used for the US bidder sample only.

The relative strength or weakness of the domestic versus the foreign currency can influence the premiums paid in a merger. Currency strength can affect the acquisition cost of the target firm, how an acquisition is financed, and the value of the repatriated profits to the bidder. Vasconcellos et al. (1990), Harris and Ravenscraft (1991), and Kiymaz and Mukherjee (2000) report that when the bidder's currency is strong relative to the target's currency, the target's shareholders receive greater wealth gains. FXRATE variable is constructed by following a two-step procedure used by Harris and Ravenscraft (1991): the exchange rate of the foreign currency (in terms of US dollars) in the year of announcement is subtracted from the average exchange rate of the foreign currency during the study period. The difference is then divided by the average exchange rate. A positive (negative) value indicates that the foreign currency is stronger (weaker) relative to the US dollar. A stronger foreign currency allows a bidder to be able to pay a higher premium for a target so that this variable is expected to relate directly to the target's wealth gains.

The impact on bidders is unclear because the expected future cash flows would be a function of future exchange rates. In general, bidders would be better off with a strong home currency at the time of acquisitions and a weak home currency at the time of repatriation of dividends and cash flows. As Vasconcellos and Kish (1993) point out, "... as the dollar strengthens, the future profits to be remitted from a prospective subsidiary will have a lower discounted value measured in dollars. Thus the direction of the exchange rate effect is not clear-cut... and becomes an empirical question...".

[7] For example, for a 1995 merger, the correlation coefficient measures the association between the annual growth rates in the GNP of the two involved countries over the previous 10-year period (1985–1994). If multiple acquisitions involving the two countries take place in 1995, then the same coefficient applies to each acquisition.

A different way of analyzing the impact of the exchange rate on wealth gains is to take into account the volatility of exchange rates. The higher the variation in the exchange rate of the home countries of bidding and target firms, the higher the uncertainty about the value of cash flows (i.e. repatriated earnings to the parent company) and hence the lower the wealth gains to bidders and targets. FXVOL is constructed as the standard deviation of monthly exchange rates during the year of merger. This variable is expected to vary inversely with the wealth gains to both bidders and targets.

3.3.2. Geographic variables

Several studies (Hughes and Mester, 1998; Demsetz and Strahan, 1997) suggest that geographically diversified institutions improve the risk-return trade-off. Berger et al. (2000) also argue that cross-border consolidations are likely to improve the risk-expected return trade-off of bidder and target. Acquisitions in different regions may also explain the differences in wealth effect because of the different level of economic development, economic integration, and diversification potential between regions. Berger et al. (2000) further argue that the deregulation of geographic restriction and harmonization of the regulatory environment have increased the consolidation frequency of financial institutions. The Single Market Programme in Europe created the opportunity for operating across national borders and made cross border consolidation less costly. The presence of a common legal environment may have a positive impact on wealth gains to bidders and targets because of the advantage of operating in a common legal environment. Also, regional economic unions may impose some common regulations on financial institutions. A common legal environment, on the other hand, can be very restrictive to countries outside of the union, increasing transaction and legal implementation costs and adversely affecting wealth gains to bidders. Cybo-Ottone and Murgia (2000) also argue that different structure and regulations of EU banking market are the driving forces of differences in wealth gains in European and US bank mergers.

To get further insight into the potential impact of geographical diversification on wealth gains of bidders and targets, a set of regional dummy variables are constructed based on the target (bidder) firm's geographical location. EUROPE is a dummy variable that is equal to one if the acquisition takes place in Europe (or the acquiring firm is headquartered in Europe), and zero otherwise. ASIA, CANADA, and LATIN variables are also constructed in a similar way for target and bidder samples.

3.3.3. Industry classification variables

The sample includes firms from four financial industry classifications. Differing levels of efficiency and expertise in each industry and differing abilities to exploit opportunities may help explain wealth effects. For example, Doukas and Travlos (1988) report that wealth gains are greater when firms diversify across industries. To get insight into the impact of industrial classification on wealth gains, a set of dummy variables are constructed. SIC6061 is a dummy variable that equals one if the industry classification is depository and non-depository credit institutions, and zero

otherwise. Similarly, SIC62 represents security and commodity brokers and dealers, SIC6364 represents insurance carriers and dealers, and SIC67 represents investment companies and other financial services. Finally, we use the industry classification of merging partners to test whether the merger is aimed at exploiting economies of scale or scope. Although efficiency gains from exploiting scale and scope economies are cited as motivation for the merger of financial institutions, consolidation may also create scope and scale diseconomies (i.e. Rajan, 1996; Kroszner and Rajan, 1997). SSIC is a dummy variable taking the value of one if both bidders and targets are in the same industry classification, and zero otherwise. While a significant positive SSIC variable would indicate that there is significant synergy (economies of scale), a negative significant SSIC would support the argument that the merger is for the purpose of diversification (economies of scope). If both targets and bidders engage in similar activities, the merger can create value through the replacement of a less efficient manager with a more efficient one or a merger can create value through increased market power. Morck et al. (1990) report that mergers among the same SIC firms create positive wealth gains for bidders.

3.3.4. Cultural and other variables

Cultural similarities (LANG): Transaction cost literature recognizes that the greater cultural differences between bidder and target, the higher transaction costs. Hisey and Caves (1985) and Anderson and Gatignon (1986) argue that using a common language is likely to lower cost because intercompany communication would take place using only one language and transaction costs should be lower between two English-speaking countries. Furthermore, a common language may indicate a greater degree of similarity in two cultures. Therefore, a merger between two firms in two English-speaking countries could be perceived as good news for both the target and the bidder. Following Markides and Ittner (1994), the dummy variable is one when both the bidder and the target belong to English-speaking countries, and zero otherwise. [8]

Government effectiveness (GOVEFF): The quality of public institutions may be used as a proxy for information cost. A higher level of government effectiveness (or public institutions) is hypothesized to lower the cost of entry. Hence, it may be perceived as a favorable factor influencing the wealth gains to the bidder. The quality of public institutions is based on an index created by Knack and Keefer (1995). The index is an average of five indicators of the quality of public institutions, including the perceived efficiency of government bureaucracy, the extent of government corruption, efficacy of the rule of law, the presence or absence of expropriation risk, and the perceived risk of repudiation of contracts by government. Each country is scored on these five dimensions on the basis of surveys of business attitudes within the countries. The sub-indexes on the five measures are then summed to produce a single, overall index. The higher the value of index the higher the quality of public

[8] Although Canada has two official languages, it is classified as an English-speaking country.

institutions. The wealth gains to bidders are expected to relate directly to the quality of government institutions. This variable is used for US bidders only.

Other merger studies commonly use control variables to explain the wealth gains to participants. For example, form of payment, control of target, and relative size of merging partners are the most widely used. This study will also incorporate these three measures as control variables.

Type of payment (PYMT): Several studies (e.g. Wansley et al., 1983; Huang and Walkling, 1987; Travlos, 1987; Kaufman, 1988; Harris and Ravenscraft, 1991) investigate the impact the form of payment has on the wealth of shareholders of sampled firms. These studies find that the wealth effects to targets and bidders are significantly higher in cash offers than in equity exchanges. Explanations for this phenomenon include the following: First, in a stock offer, the capital gains tax is deferred until the stock is sold. Target shareholders, therefore, prefer stock offers to cash offers necessitating the payment of a higher premium in cash offers. Second, target shareholders believe that their shares are undervalued and thus prefer a stock offer because it allows them to hold an equity position in the acquiring firm and capture some of the subsequent gains when the undervaluation is revealed. Again, a higher bid must be made in a cash offer. The bidder, on the other hand, prefers a stock offer when it believes its shares to be overvalued and cash offer when it believes that its shares are undervalued. Hence, a cash offer signals good news for the bidding firm's shareholders. Third, from the perspective of the bidder's shareholders, a cash acquisition is more effective than an exchange offer in resolving the free cash flow problem (see Jensen, 1986). To test the impact of the form of payment, a dummy variable, PYMT, is constructed and is equal to one if the acquisition is financed entirely by cash, and zero otherwise.

Control (CONTROL): This variable measures the degree of control obtained or given up as a result of the merger or acquisition and is expected to be positively associated with wealth gains. [9] Having full control of the target firm would give the acquiring firm the flexibility of imposing the management style and expertise of the bidder on the target and would create greater gains for bidder. Similarly, a perceived inefficiency of target may be the reason for the acquisition in the first place and replacing the existing management with an efficient management would be good news for the shareholders of both the bidder and target. Hence, a positive relationship is expected between this variable and the wealth gains to both the bidder and the target. If acquisition activity gives the control of the target to the bidder, the variable takes a value of one, and zero otherwise.

Relative size (RELSIZE): The purpose of size variable is to control for the size of bidder and target. For the target sample the variable is constructed as a relative size measure by dividing the total assets of the foreign bidder (in US dollars) by the total assets of the target (in US dollars) at the end of the year prior to the merger year.

[9] Mergers and Acquisitions reports whether the bidder gets total control after the acquisition. The degree of control refers to the full acquisition of a target or the acquisition of majority interests that will give bidder control of target.

Previous studies (e.g. Asquith et al., 1983; Jarrell and Poulsen, 1989; Houston and Ryngaert, 1994) find that average wealth gains to the bidder increase significantly as target size increases relative to the bidder size.

Bidder size (BIDSIZE): For the bidder sample, the natural log of the total assets of bidder is used as the size variable because of the lack of information about the value of the total assets for many of the foreign target firms.

4. Empirical results

4.1. Wealth effects

The wealth gains to US bidder and target firms are calculated by using both a market model and a two-factor model, where the second factor is the short-term interest rate. The results are reported in Table 2. The behavior of the abnormal returns to US targets and US bidders during the 21-day period surrounding the merger announcement based on a market model is reported in Panel A of Table 2. [10] The average abnormal returns (AARs) for US bidders are 0.16% and 0.12% on the days −1 and 0 and are not statistically significant. The only significant daily return occurs on day −8 (0.27%) and day +3 (−0.22%). The positive significant AARs on day 8 may imply information leakage prior to the announcement, while the negative AARs on day +3 may be a result of a market adjustment following the merger announcement. Panel B of Table 2 reports five different cumulative abnormal return (CARs) windows for the bidder firms. For the $(-1, 0)$ and $(-1, +1)$ windows, the CARs are 0.28% and 0.38% respectively, but only the CARs on the latter window is weakly significant. The same table also outlines the finding for US target firms. The AARs for days −1 and 0 are 2.71% and 0.64% respectively and both results are statistically significant at the 1% and 10% level respectively. Panel B of same table also reports CARs for the US target firms. All CARs are positive and highly statistically significant. For example, the CARs in window $(-1, 0)$ are 3.34%, while the CAR in window $(-1, +1)$ is 3.41%.

Panel A of Table 3 reports the CARs for US bidders in five different windows with respect to the location of the foreign target and industry classification. US bidders making acquisitions in Latin America consistently enjoy positive abnormal returns in all windows. For example, the CARs for windows $(-1, 0)$ and $(-1, +1)$ are 1.02% and 1.92% respectively. Both are highly significant. While acquisitions in Europe yield insignificant positive CARs in all windows, acquisitions in Canada result in negative insignificant wealth gains to US bidders in all windows. US bidders' involvement in mergers in Far East Asia yields mixed results that are not statistically significant.

Detailed analysis of wealth gains to US bidders with respect to industry affiliation is reported in the lower part of Panel A. Accordingly only the SIC67 group

[10] The results of two-factor model are not discussed here since they are similar to those of the market model. The results of the single-market model will be used for the rest of the study. Cybo-Ottone and Murgia (2000) also employ a two-factor model in their study of mergers in European banking and report that the results of the two-factor model are very similar to those reported with market model.

Table 2
Abnormal return to US targets and bidders surrounding the announcement of cross-border acquisitions

Days	US bidders				US targets			
	Single market model		Two-factor model		Single market model		Two-factor model	
	AARs (%)	*t*-value	AARs (%)	*t*-value	AARs (%)	*t*-value	AARs (%)	*t*-value
Panel A: Average daily abnormal returns								
−10	0.15	1.15	0.19	1.49	−0.25	−0.65	−0.23	−0.63
−9	−0.14	−1.08	−0.09	−0.69	0.03	0.07	0.04	0.12
−8	0.27	2.09**	0.23	1.80*	0.47	1.22	0.58	1.62
−7	−0.12	−0.93	−0.10	−0.77	−0.47	−1.21	−0.42	−1.16
−6	−0.01	−0.11	0.02	0.14	0.40	1.03	0.40	1.12
−5	0.04	0.28	0.01	0.06	0.34	0.88	0.41	1.15
−4	0.04	0.27	0.03	0.27	−0.01	−0.01	0.07	0.20
−3	0.21	1.59	0.20	1.54	0.23	0.60	0.17	0.48
−2	0.03	0.26	0.02	0.17	0.26	0.67	0.30	0.82
−1	0.16	1.26	0.21	1.67	2.71	7.03***	3.16	7.57***
0	0.12	0.91	0.06	0.47	0.64	1.66*	0.65	1.73*
+1	0.10	0.79	0.14	1.09	0.07	0.18	0.02	0.05
+2	−0.01	−0.08	−0.04	−0.29	−0.16	−0.41	0.00	0.00
+3	−0.22	−1.68*	−0.29	−2.09**	−0.20	−0.51	−0.26	−0.71
+4	0.20	1.56	0.20	1.60	−0.43	−1.12	−0.39	−1.08
+5	−0.10	−0.76	−0.06	−0.44	0.67	1.73*	0.55	1.53
+6	−0.12	−0.90	−0.14	−1.10	−0.16	−0.43	−0.24	−0.66
+7	0.08	0.65	0.02	−0.02	0.48	1.25	0.41	1.13
+8	0.20	1.56	0.18	1.39	0.10	0.27	0.02	0.05
+9	−0.30	−2.28**	−0.23	−1.78	0.16	0.42	0.16	0.44
+10	0.02	0.15	0.04	0.30	0.25	0.64	0.19	0.52
Panel B: Cumulative abnormal returns (CARs)								
Windows	CARs (%)	*t*-value	CARs (%)	*t*-value	CARs (%)	*t*-value	CARs (%)	*t*-value
CARs(-1,0)	0.28	1.53	0.27	1.50	3.34	6.15***	3.84	6.23***
CARs(-1,1)	0.38	1.71*	0.40	1.72*	3.41	5.12***	3.86	5.14***
CARs(-5,5)	0.57	1.33	0.48	1.30	4.12	3.23***	4.71	3.75***
CARs(-10,10)	0.61	1.03	0.56	1.01	5.12	2.90**	5.43	2.98**
CARs(-10,2)	0.83	1.78*	0.88	1.80*	4.26	3.07***	5.18	4.43***

The null hypothesis is that the average abnormal returns are not statistically different from zero.
***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

(investment companies) experiences significant positive wealth gains. [11] For example, the CARs for windows $(-1, 0)$ and $(-1, +1)$ are 1.86% and 2.25% respectively. Both results are statistically significant at the 1% level. While the wealth gains to the SIC6061 group (depository/non-depository institutions) are negative, the abnormal

[11] Berger et al. (2000) suggest that efficiently managed foreign institutions may increase revenues through superior investment or risk management skills, or diversification of risks that allow them to undertake investments with higher risk and higher expected returns.

Table 3
Cumulative abnormal returns (CARs) by regional affiliation and industry classification

	CARs(−1, 0) (%)	CARs(−1, 1) (%)	CARs(−5, 5) (%)	CARs(−10, 2) (%)	CARs(1, 6) (%)
Panel A: US bidders					
Regions					
Europe	0.30	0.11	0.55	0.70	0.29
	(1.34)	(0.43)	(1.03)	(1.20)	(0.65)
Far East Asia	0.28	0.47	0.02	−0.06	−1.24
	(0.57)	(0.78)	(0.02)	(−0.05)	(1.26)
N. America (Canada)	−0.42	−0.22	−1.13	−0.57	−0.83
	(−0.72)	(−0.31)	(−0.81)	(−0.38)	(−0.69)
Latin America	1.02	1.92	1.89	2.20	1.61
	(2.12)**	(3.25)***	(1.67)*	(1.79)*	(1.67)*
Others	−0.53	0.01	2.80	4.46	−0.04
	(−0.59)	(0.01)	(1.31)	(1.93)*	(−0.03)
Industry classification					
SIC 6061	−0.61	−0.27	−1.81	−1.79	−1.51
	(−1.53)	(−0.56)	(−1.94)*	(1.76)*	(−1.90)*
SIC 62	0.32	−0.18	−0.40	0.58	0.02
	(0.62)	(−0.29)	(−0.29)	(0.43)	(0.02)
SIC 6364	0.22	0.30	0.30	1.71	0.31
	(0.94)	(1.04)	(1.04)	(2.81)**	(0.67)
SIC 67	1.86	2.25	2.20	2.60	2.40
	(3.18)***	(3.15)***	(1.60)***	(1.75)*	(2.05)*
Panel B: US targets					
Regions					
Europe	2.67	3.07	3.77	3.38	2.69
	(3.62)***	(3.40)***	(2.18)**	(1.80)*	(1.82)*
Far East Asia	2.42	1.81	1.60	3.35	2.14
	(2.70)**	(1.65)	(0.76)	(1.46)	(1.19)
N. America (Canada)	5.72	5.31	6.56	7.24	4.94
	(7.64)***	(5.79)***	(3.74)***	(3.79)***	(3.30)***
Industry classification					
SIC 6061	4.92	5.10	6.46	5.03	4.43
	(5.57)***	(4.72)***	(3.12)***	(2.23)**	(2.51)**
SIC 62	1.89	1.59	2.97	5.05	3.47
	(1.48)	(1.02)	(0.99)	(1.55)	(1.36)
SIC 6364	3.26	3.47	4.26	4.23	3.17
	(5.59)***	(4.86)***	(3.11)***	(2.84)***	(2.72)***
SIC 67	1.55	1.58	−0.67	0.69	−1.05
	(1.13)	(0.93)	(−0.21)	(0.20)	(−0.38)

This table presents the abnormal return to US bidders and targets surrounding the announcement of cross-border acquisitions. The null hypothesis is that the cumulative abnormal returns are not statistically different from zero.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

returns to SIC62 group (broker/security dealers) and SIC6364 (insurance companies) are positive. None of these CARs are statistically significant.

Panel B of Table 3 reports the CARs for US targets in six different windows with respect to the location of the foreign bidder and industry classification. US targets obtain the highest wealth gains when acquired by Canadian firms. For example, the CARs in the $(-1, 0)$ window are 5.72% for US targets of Canadian bidders. The CARs for the US targets of Europe and Far East Asia acquirers are 2.67% and 2.42% respectively. Both are statistically significant. Similar results are obtained in other event windows.

The wealth gains for US targets are positive for all industry subgroups. Both SIC6061 (depository/non-depository institutions) and SIC6364 (insurance companies) experience highly significant wealth gains. For example the CARs for SIC6061 and SIC6364 during event window $(-1, 0)$ is 4.92% and 3.26% respectively. [12]

Generally, US targets experience highly significant positive wealth gains, the magnitude of which depends on the country location of the foreign bidder. The highest gains (5.72%) occur when Canadian firms acquire US firms. US bidders also experience positive wealth gains that vary according to the targets' home country. US bidders encounter positive significant wealth gains from acquisitions in Latin America (1.92%), positive, but insignificant, wealth gains from acquisitions in Europe and Far East Asia, and negative, but insignificant wealth gains from acquisitions in Canada and in "Others". Obtaining a positive wealth effect in Latin America supports the view that there are greater diversification benefits by expanding into developing regions. Negative wealth gains from US acquisitions of Canadian targets may be the result of having a similar economic and cultural environment, hence the lack of regional diversification benefits. With respect to industry classification, targets in SIC6061 and SIC6364 and bidders in SIC67 experience statistically significant positive wealth gains.

The overall wealth gains to US targets are in line with the domestic merger studies of financial institutions even though the magnitude of the wealth gains differs. For example, Cornett and Tehranian (1992), Houston and Ryngaert (1994), Siems (1996), and Frames and Lastrapes (1998) report statistically significant wealth gains (9% on average) to targets while this study finds wealth gains of only 3.4%. [13] The wealth gains to US bidders, on the other hand, are contrary to the results of most

[12] We also test for the difference in the means of the same SIC classification versus others for both US bidders and targets. For the US bidder sample, 61 mergers are in the same SIC group, while 36 of firms in US target sample are in the same SIC group. The differences of mean tests are applied to the abnormal returns for these groups (i.e. same SIC vs. others). The test results indicate that the differences are not statistically significant. The target sample has a t-statistic of 0.69, while the bidder sample has a t-statistic of 0.62. Hence, we are unable to conclude whether the economies of scale or scope would be a dominant factor for these mergers.

[13] The magnitude of the wealth gains, on the other hand, varies for each study. For example, Cornett and Tehranian (1992) report wealth gains of 8% to targets while Houston and Ryngaert (1994) find wealth gains of 14% to targets. Since most of the domestic merger studies involve banks, a better comparison would be between the domestic studies of banks and the depository/non-depository sub-sample of this study. Accordingly, the difference between the magnitudes of the wealth gains to these groups becomes even smaller.

Table 4
Cross-sectional regression results for US bidders

Variables	1	2	3	4
Constant	−0.010	−0.015	−0.095	−0.289
	(−0.68)	(−0.98)	(−4.98)***	(−5.35)***
Macroeconomic variables				
FORECO	−0.148	−0.128	−0.139	−0.098
	(−5.30)***	(−4.36)***	(−5.63)***	(−3.59)***
GNPGCOR	0.036	0.070	0.029	0.021
	(0.91)	(1.10)	(0.82)	(0.44)
DEVELOP	0.149	0.093	0.128	0.122
	(7.88)***	(3.43)***	(7.62)***	(4.67)***
FXRATE	0.081	0.051	0.036	0.017
	(1.03)	(0.63)	(0.52)	(0.23)
FXVOL	−0.010	−0.008	−0.008	−0.002
	(−2.15)**	(−1.66)*	(−2.05)**	(−0.39)
Geographic variables				
EUROPE	–	–	–	–
ASIA	–	−0.035	–	−0.001
		(−1.16)		(0.20)
CANADA	–	−0.034	–	0.005
		(−1.08)		(0.16)
LATIN	–	0.088	–	0.092
		(2.76)***		(2.77)***
OTHER	–	−0.020	–	0.005
		(−0.45)		(1.21)
Industry classification variables				
SIC6061	–	–	–	–
SIC62	–	–	0.088	0.101
			(3.72)***	(4.15)***
SIC6364	–	–	0.076	0.069
			(3.74)***	(3.31)***
SIC67	–	–	0.182	0.189
			(8.57)***	(8.74)***
SSIC	–	–	0.005	−0.009
			(0.31)	(−0.51)
Other variables				
LANG	–	–	–	0.017
				(0.76)
GOVEFF	–	–	–	0.069
				(3.07)***
PYMT	–	–	–	−0.062
				(−2.83)***
CONTROL	–	–	–	0.065
				(2.77)***
TABID	–	–	–	0.019
				(2.71)***
Adj. R^2	0.35	0.38	0.52	0.58
F-value	25.74***	16.12***	27.72***	17.49***

Table 4 (*continued*)

$$\begin{aligned}\mathrm{CAR} = {} & \beta_0 + \beta_1 \mathrm{FORECO} + \beta_2 \mathrm{GNPGCOR} + \beta_3 \mathrm{DEVELOP} + \beta_4 \mathrm{FXRATE} \\ & + \beta_5 \mathrm{FXVOL} + \beta_6 \mathrm{EUROPE} + \beta_7 \mathrm{ASIA} + \beta_8 \mathrm{CANADA} + \beta_9 \mathrm{LATIN} \\ & + \beta_{10} \mathrm{OTHER} + \beta_{11} \mathrm{SIC6061} + \beta_{12} \mathrm{SIC62} + \beta_{13} \mathrm{SIC6364} + \beta_{14} \mathrm{SIC67} + \beta_{15} \mathrm{SSIC} \\ & + \beta_{16} \mathrm{LANG} + \beta_{17} \mathrm{GOVEFF} + \beta_{18} \mathrm{PYMT} + \beta_{19} \mathrm{CONTROL} + \beta_{20} \mathrm{TABID} + \varepsilon\end{aligned}$$

where CAR = Cumulative abnormal returns for the (1,0) period; FORECO = [the GNP growth of target country in the year of merger announcement minus the average GNP growth of target country during the study period] divided by the average GNP growth rate of target country during the study period; GNPGCOR = Correlation between the annual GNP growth rates of the two participating countries over a 10-year period prior to merger year; DEVELOP = A dummy variable that equals one if acquisition takes place in a developing country and zero otherwise; FXRATE = [the average exchange rate during the study period for foreign currency in terms of dollar *minus* the exchange rate for foreign currency in the year of merger announcement] divided by the average exchange rate during the study period for foreign currency; FXVOL = volatility of related currency during the year of acquisition; EUROPE = A dummy variable that equals one if acquisition takes place in Europe and zero otherwise; ASIA = A dummy variable that equals one if acquisition takes place in Asia and zero otherwise; CANADA = A dummy variable that equals one if acquisition takes place in Canada and zero otherwise; LATIN = A dummy variable that equals one if acquisition takes place in Latin America and zero otherwise; SIC6061 = A dummy variable that equals one if industry classification is depository and non-depository credit institutions and zero otherwise; SIC62 = A dummy variable that equals one if industry classification is security and commodity brokers and dealers and zero otherwise; SIC6364 = A dummy variable that equals one if industry classification is insurance carriers and dealers and zero otherwise; SIC67 = A dummy variable that equals one if industry classification is investment companies and other financial services and zero otherwise; SSIC = A dummy variable that equals one if both bidder and target have same industry classification and zero otherwise; LANG = A dummy variable that equals one if acquisition is taking place in an English-speaking country and zero otherwise; GOVEFF = An index measuring the effectiveness of governments of target country; PYMT = A dummy variable that equals one if the form of payment is all cash, zero otherwise; CONTROL = A dummy variable that equals one if acquisition gives the bidder control of the firm and it takes on a value of zero otherwise; TABID = Log of the total assets of bidders prior to merger year.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

domestic studies. While most of the domestic studies (i.e. Houston and Ryngaert, 1994; Hannan and Wolken, 1989; Cornett and Tehranian, 1992, among others) and other international studies (e.g., Waheed and Mathur, 1995) report negative wealth gains to bidder, this study finds positive wealth gains to bidders. Biswas et al. (1997) also report positive wealth gains to US bidders. [14]

[14] Once again when we compare the depository/non-depository sub-sample of this study with domestic studies of banks, the results are similar. For example, most of the studies of banks find negative wealth gains to bidder, this study also find negative wealth gains to the depository/non-depository sub-sample. The results of this study may be driven by the fact that the sample of this study has a mix of various financial institutions rather than banks alone.

4.2. Factors influencing wealth effects

The results of the cross-sectional regression analyses are reported in Table 4 (US bidders) and Table 5 (US targets). [15] In order to control the heteroskedasticity problem, variables are normalized by the standard errors of the market model following Cebenoyan et al. (1992), Kang (1993), and Kiymaz and Mukherjee (2000). Tables 4 and 5 each contain regression results for four separate equations. Each equation adds a new group of independent variables into the analysis. The first equation in each table uses the macroeconomic variables to explain the wealth effects. While the second equation contains macroeconomic variables along with geographic variables, the third equation includes macroeconomic variables and industry classification variables. Finally, the fifth equation includes macroeconomic, geographic, industry classification, and cultural and other variables.

The regression results for US bidders are reported in Table 4. The adjusted R^2 ranges from 0.35 to 0.58. The F-values for the four regressions are statistically highly significant. The impact of macroeconomic variables on the wealth gains to US bidders is evident from Table 4. FORECO, DEVELOP, and FXVOL variables are statistically highly significant across each set of equations. For example, FORECO has the coefficient of −0.148 in the first equation and is inversely related to the wealth gains to US bidders. This may imply that US bidders with acquisitions in countries with more favorable economic conditions are forced to pay more of a premium to the target, or alternatively this may imply that the bidder is more optimistic about future potential of acquisition and overpays for the target, and hence the bidder experiences negative wealth gains. Madura and Wiant (1994) argue that the negative return to the bidder may be a result of higher offer price to target. The DEVELOP variable is another consistently significant macroeconomic variable. It has the hypothesized positive sign indicating that acquisition in developing countries yields greater wealth gains for US bidders. For example, the coefficient in the first equation is 0.149 and this is statistically significant at the 1% level. This finding is in line with Waheed and Mathur (1995) who report that expansion into developing countries yields higher wealth gains to bidders. The third significant variable is FXVOL and it has a negative coefficient of −0.010 in the first equation. The negative sign of FXVOL shows that the higher the volatility in the foreign exchange market, the higher the uncertainty about the future cash flows and hence reduced possible wealth gains to the bidders. The remaining macroeconomic variables, FXRATE and GNPGCOR, do not have any significant impact on wealth gains in this study. The positive sign of FXRATE would indicate, however, that the stronger the dollar against the foreign currency, the higher the wealth gains to US bidders.

The second equation in Table 4 adds geographic dummy variables into the analysis. [16] Only the LATIN dummy variable has a statistically significant positive coef-

[15] The pairwise correlation among explanatory variables indicates that the multi-collinearity is not a problem to influence our interpretation of the results.

[16] To avoid dummy variable trap, Europe variable is chosen as a control group and the remaining regions (Asia, Canada, Latin America, and Others) are defined as dummy variables relative to the control group (Europe). The findings with respect to regions are interpreted relative to the control group.

Table 5
Cross-sectional regression results for US targets

Variables	1	2	3	4
Constant	0.0002	0.0001	0.0005	−0.0003
	(0.55)	(0.26)	(0.07)	(−0.67)
Macroeconomic variables				
USECO	0.075	0.112	0.069	0.205
	(1.06)	(1.61)	(0.89)	(2.27)**
GNPGCOR	0.102	0.029	0.120	0.029
	(1.86)*	(0.49)	(1.92)*	(0.38)
FXRATE	0.128	0.095	0.133	0.099
	(1.22)	(0.94)	(1.25)	(0.98)
FXVOL	−0.014	−0.001	−0.001	−0.001
	(−0.76)	(−0.39)	(−0.66)	(−0.22)
Geographic variables				
EUROPE	–	–	–	–
ASIA	–	0.041	–	0.071
		(0.96)		(1.63)
CANADA	–	0.088	–	0.104
		(2.83)***		(3.22)***
Industry classification variables				
SIC6061	–	–	–	–
SIC62	–	–	−0.012	−0.015
			(−0.50)	(−0.64)
SIC6364	–	–	−0.010	0.010
			(−0.32)	(0.32)
SIC67	–	–	−0.023	−0.001
			(−0.64)	(−0.02)
SSIC	–	–	0.027	−0.007
			(1.06)	(−0.26)
Other variables				
LANG	–	–	–	−0.011
				(−0.36)
PYMT	–	–	–	0.069
				(1.43)
CONTROL	–	–	–	0.045
				(1.46)
RELSIZE	–	–	–	0.002
				(2.08)**
Adj. R^2	0.04	0.12	0.02	0.21
F-value	1.68	2.60**	1.41	2.31**

$$\begin{aligned}\mathrm{CAR} = {} & \beta_0 + \beta_1 \mathrm{USECO} + \beta_2 \mathrm{GNPGCOR} + \beta_3 \mathrm{FXRATE} + \beta_4 \mathrm{FXVOL} + \beta_5 \mathrm{EUROPE} + \beta_6 \mathrm{ASIA} \\ & + \beta_7 \mathrm{CANADA} + \beta_8 \mathrm{SIC6061} + \beta_9 \mathrm{SIC62} + \beta_{10} \mathrm{SIC6364} + \beta_{11} \mathrm{SIC67} + \beta_{12} \mathrm{SSIC} \\ & + \beta_{13} \mathrm{LANG} + \beta_{14} \mathrm{PYMT} + \beta_{15} \mathrm{CONTROL} + \beta_{16} \mathrm{RELSIZE} + \varepsilon\end{aligned}$$

where CAR = Cumulative abnormal returns for the (1,0) period; USECO = [the GNP growth of US in the year of merger announcement minus the average GNP growth of US during the study period] divided by

Table 5 (*continued*)

the average GNP growth rate of US during the study period; GNPGCOR = Correlation between the annual GNP growth rates of the two participating countries over a 10-year period prior to merger year; FXRATE = [the average exchange rate during the study period for foreign currency in terms of dollar minus the exchange rate for foreign currency in the year of merger announcement] divided by the average exchange rate during the study period for foreign currency; FXVOL = volatility of related currency during the year of acquisition; EUROPE = A dummy variable that equals one if the bidder is from a European country and zero otherwise; ASIA = A dummy variable that equals one if the bidder is from an Asian country and zero otherwise; CANADA = A dummy variable that equals one if the bidder is an Canadian firm and zero otherwise; SIC6061 = A dummy variable that equals one if industry classification is depository and non-depository credit institutions and zero otherwise; SIC62 = A dummy variable that equals one if industry classification is security and commodity brokers and dealers and zero otherwise; SIC6364 = A dummy variable that equals one if industry classification is insurance carriers and dealers and zero otherwise; SIC67 = A dummy variable that equals one if industry classification is investment companies and other financial services and zero otherwise; SSIC = A dummy variable that equals one if both bidder and target have same industry classification and zero otherwise; LANG = A dummy variable that equals one if the bidder is from an English-speaking country and zero otherwise; PYMT = A dummy variable that equals one if the form of payment is all cash, zero otherwise; CONTROL = A dummy variable that equals one if acquisition gives the bidder control of the firm and it takes on a value of zero otherwise; RELSIZE = The ratio of total assets of bidder over the total assets of target prior to merger year.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

ficient of 0.088, indicating that acquisitions in Latin America yield significantly higher wealth gains relative to acquisitions in Europe. The remaining geographic variables have negative signs, indicating that returns from acquisitions in Asia, Canada, and Others group yield lower wealth gains to US bidders relative to acquisitions in Europe. These results clearly show that regional variations play an important role in explaining wealth gains. Cakici et al. (1996) and Kiymaz and Mukherjee (2000) also report similar findings.

The industry classification dummy variables are added into analysis in the third equation. Here SIC6061 (depository/non-depository institutions) group is chosen as a control group. The SIC67 (investment companies) group has the highest coefficient of 0.182 and is statistically significant at the 1% level, indicating that acquisitions by US investment companies yield higher wealth gains relative to the acquisitions by depository/non-depository institutions. Similarly, the remaining groups (SIC62 and SIC6364) have statistically significant positive coefficients, implying that wealth gains are also relatively higher in these groups compared to the control group. The significant macroeconomic variables in previous equations continue to be statistically significant as well.

The final equation includes macroeconomic, geographic, industry classification, and cultural and other variables. Most of the cultural and other variables are statistically significant. For example, the GOVEFF variable has a statistically highly significant coefficient of 0.069. This would indicate that US acquisitions in countries with a more effective government in present yield higher wealth gains to US bidders. There may be lower information costs in countries with more effective governments.

PYMT, CONTROL, and TABID variables are all statistically significant. PYMT has a coefficient of −0.062, indicating that the wealth gains are lower when the form of payment is cash. This finding is not in line with previous studies and our initial expectations. The CONTROL variable has a positive coefficient of 0.065. It shows acquisitions that allow the bidding firm to take the control of the target firm yield positive wealth gains. Finally, the TABID variable has a coefficient of 0.019 and indicates that larger firms experience higher wealth gains than do smaller firms. The coefficient of the cultural similarities variable (LANG) is statistically insignificant, but it has a positive sign consistent with the hypothesis that transaction costs are lower in countries with similar cultures. Hence, benefits to the bidder might be expected to be higher.

The regression results for US targets are reported in Table 5. The adjusted R^2 ranges from 0.04 to 0.21. The macroeconomic variables affect the wealth gains to US targets in various equations. For example, USECO has a statistically significant coefficient of 0.205. This would imply that US targets are able to obtain, or negotiate, better acquisition terms when economic conditions in the US are more favorable. The GNPGCOR is also weakly significant in the first and third equation. This would indicate that there are higher wealth gains to US targets when the bidders are from countries with similar business cycles. [17] This result is contrary to expectations. The remaining macroeconomic variables, FXRATE and FXVOL, do not seem to have any statistically significant impact on wealth gains although they do have the expected signs.

The second equation in Table 5 adds geographic dummy variables into the analysis. [18] Only the CANADA dummy variable has a statistically significant coefficient of 0.088, indicating that acquisitions by Canadian firms yield significantly higher wealth gains to US targets compared to acquisitions by European firms. There is no statistically significant difference in the wealth gains between the acquisitions by European and Asian firms.

The industry classification dummy variables are added into analysis in the third equation. Here SIC6061 (depository/non-depository institutions) group is again chosen as a control group. The coefficients of SIC62 (broker/security dealers), SIC6364 (insurance companies), and SIC67 (investment companies) have negative coefficients, indicating that even though the wealth gains to these groups are lower than wealth gains to SIC6061 (depository/non-depository) group the difference is not statistically significant. Eq. (4) adds the cultural and other variables. Only the RELSIZE variable is statistically significant, indicating that the larger relative size of bidder to target yields a higher wealth gains to US targets. This finding is in line with the previous studies (e.g., Jarrell and Poulsen, 1989; Houston and Ryngaert, 1994).

Generally, the results of the cross-sectional regressions demonstrate that the macroeconomic variables play significant roles in explaining wealth gains to both

[17] These results may be influenced by Canadian sample. As previously reported, wealth gains to US targets are higher when they are acquired by Canadian firms and business cycle between US and Canada is similar.

[18] Europe variable is again chosen as a control group to avoid the dummy variable trap.

bidders and targets. For example, the FORECO, DEVELOP, and FXVOL variables are consistently significant for US bidders, while USECO is also significant in explaining the gains to US targets. Among the geographic variables, the LATIN and CANADA variables are significant in explaining the wealth gains to US bidders and targets respectively. The effectiveness of the host government is a factor for US bidders along with form of payment, control, and size variables. For US targets, in addition to macroeconomic and geographic variables, the relative size of bidder to target plays an important role in explaining wealth gains.

The findings of this study suggest that the cross-border merger activities benefit mostly targets and minimally bidders. This may imply that consolidation in the financial service industry may continue in the future. Not finding a strong evidence of wealth gains to bidder, however, may limit the global consolidation of financial institutions and may leave market for domestic financial institutions. Favorable economic conditions in target and bidder's country are likely to increase cross-border merger activities. Finding varying wealth gains in different regions may imply that certain regulations by economic unions to protect domestic institutions makes it difficult or costly for foreign institutions to enter these markets and limit the global consolidation of financial service industry.

5. Summary

This study investigates the impact of mergers and acquisitions on US bidders and targets involved in cross-border mergers of financial institutions. The sample consists of 207 cross-border acquisitions by US bidders and 70 acquisitions of US targets. The findings indicate that US targets experience statistically significant wealth gains during the merger announcements while US bidders experience insignificant wealth gains. Further analysis, with respect to the geographical location of foreign targets and bidders, indicates that there are differences in wealth gains with respect to the location of the foreign targets and bidders. US bidders only experience significant wealth gains in their acquisitions of targets located in Latin American countries. The highest wealth gains to US targets occur when Canadian firms acquire them. The analysis of wealth gains with respect to industry affiliation indicates that US investment companies (SIC67) experience the greatest wealth gains in acquiring foreign targets, while US depository/non-depository institutions (SIC6061) and insurance firms (SIC6364) experience the greatest wealth gains when they are the target of a foreign acquirer.

The regression results show that the macroeconomic variables are very important in explaining the wealth gains to market participants. There are inverse relationships between wealth gains to US bidders and the foreign economic conditions, exchange rate volatility, and mode of acquisitions. The wealth gains to the US bidder is higher when the acquisition takes place in a developing country, when the bidder is an investment company, when the target country government is perceived to be more effective, and when the bidder takes control of the target. US targets experience higher wealth gains when US economic conditions are more favorable, and when relative size ratio of the foreign bidder to the US target is larger.

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