



**RIDING THE WAVES: CROSS-BORDER ACQUISITIONS AS A QUEST FOR
NEW CAPABILITIES**

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RIDING THE WAVES: CROSS-BORDER ACQUISITIONS AS A QUEST FOR NEW CAPABILITIES

Abstract

We argue that the cross-border acquisition activity is characterized by a cyclical pattern similar to the domestic merger waves. We consider several factors that can influence the cross-border merger waves, including the changes in the firms' resource requirements following economic or regulatory shocks. The results of the tests on a large-scale archival dataset suggest that the motivations for cross-border and domestic waves may be different. In the cross-border waves, many acquirers are motivated by the search for new capabilities abroad; in the domestic waves, more acquirers are motivated by the desire to redeploy their existing capabilities.

Keywords:

Mergers and Acquisitions; Merger waves; Cross-border acquisitions

RIDING THE WAVES: CROSS-BORDER ACQUISITIONS AS A QUEST FOR NEW CAPABILITIES

Acquisition is an important strategic choice that can facilitate efficient redeployment of resources across firms and industries, making it an important research object both from the normative and public policy perspective. The firm's strategy with respect to acquisitions can be driven by its internal, firm-specific resources as well as its external environment. The broad M&A research has highlighted several firm-level factors that can influence the firm's acquisition decisions, such as the search for an increased market power (Chatterjee, 1986; Anand and Singh, 1997); unique acquirer-target synergies (Barney, 1988); as well as managerial hubris (Roll, 1986; Hayward and Hambrick, 1997) and agency costs (Morck, Shleifer and Vishny, 1989; Seth, 1990). Another stream of the acquisition literature studied the influence of the industry factors in the acquisition decisions. Those studies confirm that not only the industry factors matter for acquisition waves, but within each wave the transactions tend to cluster by industry, driven by sudden changes in the macro-economic environment, technology shifts, or regulatory climate (Mitchell and Mulherin, 1996; Andrade, Mitchell, and Stafford, 2001). Somewhat surprisingly, there have been few if any systematic attempts to achieve a more complete explanation of the acquisition decisions by taking into account both internal (firm-level) and external (organizational environment) factors simultaneously. We believe that combining the predictive power of the industry characteristics of the merger waves and the significant firm-level predictors can better inform the arguments on the firm's acquisition decisions, particularly in the context of the cross-border waves of such transactions.

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3 We theorize that the industry-wide changes¹ generated by the emergence of new
4 technologies, shifting marketplace preferences and deregulation events constitute just one set of
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6 important conditions for triggering cross-border merger waves. Another important set of factors
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8 that can affect the cross-border waves is located at the firm level. The firm's unique resource
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10 endowment, its need for new resources and its search for the opportunities to redeploy the
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12 existing resources can affect the likelihood of the firm making an acquisition of a foreign target,
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14 thus potentially influencing the magnitude of cross-border merger waves.
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20 Merger waves can result in industry expansion or consolidation. Mergers motivated by
21
22 the search for new capabilities can contribute to growth and efficiency by allowing firms to
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24 exploit scale economies, redistribute scarce resources to projects with the highest marginal
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26 returns, or acquire new capabilities. This suggests that public policy makers should encourage
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28 merger activity through deregulation. The research lends support to this argument since
29
30 deregulation provides a strong impetus to domestic merger activity (Mitchell and Mulherin,
31
32 1996; Andrade, Mitchell, and Stafford, 2001; Harford, 2005). On the other hand, merger waves
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34 could lead to industry consolidation and increased concentration. The tradeoff is that such
35
36 consolidation may remove excess capacity and increase efficiency, but anti-competitive effects
37
38 may emerge. For public policy makers this suggests the need for increased supervision or
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40 regulation. In practice though, the increased costs of supervision or regulation may outweigh the
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42 benefits achieved through increased efficiency. Cross-border mergers add another dimension of
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44 complexity. As firms become increasingly international there is a need to reassess industry
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53 ¹ Several studies have examined firm-specific drivers of an acquisition while controlling for the industry and the
54 relatedness of the acquisition (Markides and Ittner, 1994; Robins and Wiersema, 1995; Shaver, 1998). We are
55 interested in the shift in the resource requirements imposed by the organizational environment and the subsequent
56 drive of firms to acquire additional resources in response to such shifts. Thus the managers' strategic choice to
57 acquire a particular target should be driven by internal as well as external forces that go beyond industry
58 characteristics such as oil price shocks that affect multiple industries simultaneously.
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3 regulation and monitoring of anti-competitive actions. This is traditionally the role of national
4 governments, though shareholders, analysts and markets in general play an important part in
5 financial supervision. In this paper we examine the motives of cross-border merger waves, which
6 have significant implications for public policy.
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12 13 14 **THEORY AND HYPOTHESES**

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16 For the cross-border waves to exist, an increasing number of firms must make an
17 acquisition of a foreign target within a limited amount of time. There are multiple explanations
18 for the firm's decision to make such an acquisition; they can be grouped into two broad
19 categories: organizational environment-level effects and the firm-level drivers. Below we
20 consider those in turn.
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27 28 **Organizational environment factors and cross-border acquisition activity**

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30 Organizational environment and industry factors can significantly influence firms'
31 strategy and performance (Dess, Ireland and Hitt, 1990). The empirically confirmed observation
32 that domestic merger activity tends to cluster in identifiable merger waves for the US
33 acquisitions (Mitchell and Mulherin, 1996; Mulherin and Boone, 2000; Andrade, Mitchell, and
34 Stafford, 2001; and Harford, 2005) suggests that such industry-wide organizational environment
35 effects can also be an important factor in the firm's acquisition decision making. During a typical
36 acquisition wave, an increasing number of firms in a given industry engages in acquisition
37 activity within limited time. The industries experiencing such spikes in takeover activity vary
38 across time: industries with high levels of merger activity are no more likely to do so in other
39 decades (Andrade, Mitchell, and Stafford, 2001). A significant portion of merger activity can
40 thus be motivated by industry-specific shocks: We can expect industry-wide effects to play an
41 important role in initiating merger waves, whether domestic or cross-border.
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3 Firms can respond to industry shocks through internal change or through acquisitions.
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5 Acquisitions can be viewed as the least costly means for the industry structure to respond to the
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7 changes brought about by economic shocks (Gort, 1969; Jovanovic and Rousseau, 2002;
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9 Maksimovic and Phillips, 2001; Mitchell and Mulherin, 1996; Harford, 2005). Oil-price shocks,
10
11 technological advancements, and deregulation (Mitchell and Mulherin, 1996) fundamentally
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13 change the structure of an industry and thus can prompt the firms to actively engage in
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15 acquisitions to reduce their dependence on new constraints or acquire new resources. For
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17 example, technological shocks can create excess capacity within an industry and trigger
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19 acquisitions motivated by consolidation; deregulation can remove barriers thereby encouraging
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21 takeover activity that allows firm-level expansion (Andrade et al., 2001).
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27 Domestic studies of takeover activity show significant variation across time and across
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29 industries in response to economic shocks. If merger activity is driven by fundamental shocks we
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31 cannot expect such takeover activity to be limited to purely domestic acquisitions, particularly in
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33 the absence of any significant barriers to foreign takeovers. Industry shocks may prompt
34
35 managers to acquire, but managers can choose to acquire either domestic or international targets.
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37 Domestic transactions may appear less risky, given the additional transactions costs and
38
39 information asymmetries associated with international acquisitions. However, the pool of
40
41 available domestic targets with the best synergistic fit is limited; furthermore, the increasing
42
43 integration of product and financial markets over the last several decades provides managers
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45 with an expanded opportunity set that includes foreign targets. Regardless of whether managers
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47 seek out domestic targets first before going international, or consider domestic and foreign
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49 targets simultaneously, industry-level changes should affect cross-border merger activity.
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Though Black (2000) suggests the emergence of a single “international merger wave”, there is very little systematic evidence regarding the existence of such a wave and the factors that drive it. Cross-border acquisitions are not a recent phenomenon though decreasing barriers to trade and capital flows have certainly accelerated their incidence and reasonably reliable records of the transactions involving foreign targets or foreign acquirers start from 1985.

The industry-level economic shock argument presented above implicitly assumes that the shock originates in the firms’ home country. Firms, however, may also respond to changes in the host countries. Indeed, stock market liberalization events over the last decade have triggered dramatic increases in the level of acquisitions in emerging markets (UNCTAD Handbook of Statistics). However, such acquisitions are unlikely to be limited to a particular industry unless the liberalization event is so limited. Our focus is to understand the motives behind cross-border merger activity by US firms as a whole. FDI data (UNCTAD) shows that outward FDI by US firms is not targeted at a particular country nor is the inward FDI flow from a particular region or country.² Consequently, aggregate cross-border acquisition activity is more likely to be driven by home country factors rather than host country factors. We hypothesize:

Hypothesis 1a: Cross-border acquisitions occur in waves preceded by identifiable economic shocks in the home country of the acquirers

Shleifer and Vishny (2003) argue that bidders with overvalued stock in bull markets use stock to finance acquisitions. They also suggest that target managers accept overvalued stock as payments for their equity because they have short time horizons. An alternative explanation is offered by Rhodes-Kropf and Viswanathan (2004) who suggest that rational managers overestimate synergies during bull markets because they lack perfect information and use

² Our data confirms this

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3 overvalued stock as payment for the target.³ Overall, one can reasonably expect that merger
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5 waves will be more likely to occur following periods of abnormally high stock returns or market-
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7 to-book ratios and as there are no purely economic drivers for the wave, there should be no
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9 identifiable economic or regulatory shocks preceding that wave (Harford, 2005). Indeed,
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11 Hartford finds that market timing variables have little explanatory power in predicting domestic
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13 merger waves. The above arguments make expanding broad stock market valuations a plausible
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15 alternative explanation for the cross-border acquisition waves. Since managers can become more
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17 prone to making acquisitions when they perceive their firm's shares to be overvalued (Barney,
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19 1988; Shleifer and Vishny, 2003), one can expect to observe cross-border acquisition waves
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21 when the broad stock market in the home countries of the acquiring firms exhibits rapid growth.
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27 During the domestic acquisition waves, the managers of some firms decide to make
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29 acquisitions only after observing the increased acquisition activity within their industries (Carow
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31 et al., 2004), thus becoming the "followers" that help to increase the acquisition wave magnitude.
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33 Bikchandani et al. (1992) define this phenomenon as an "informational cascade" which occurs
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35 when it is optimal for an individual to follow the behavior of the preceding individual without
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37 regard to his own information. If multiple firms "follow" a group of bidders motivated by
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39 overvalued stock in a bull market we are more likely to observe merger waves. It is plausible to
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41 expect that similar effect can also play role in the initiation and propagation of cross-border
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43 waves. This argument assumes that acquisition activity is not driven by economic fundamental
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45 shocks but rather by mimetic behavior driven by high stock market valuations.⁴
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51 *Hypothesis 1b: Cross-border acquisitions occur in waves driven by broad changes in*
52 *stock market valuations in the home country of the acquirers*
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56 ³ Dong et al. (2003) and Ang and Cheng (2003) find evidence consistent with this.

57 ⁴ Rhodes-Kropf et al (2004) show that high valuations (market-to-book ratios) are positively correlated with the
58 incidence of domestic merger waves.
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Firm-level factors influencing the cross-border acquisition decisions

Although the macro-economic and industry-specific factors can create conditions favorable for the cross-border merger waves, they alone cannot fully account for the phenomenon. Common industry shocks can precipitate merger activity but we cannot expect the shock to affect all firms within the industry in the same way. Controlling for industry alone may not be sufficient to account for all cross-sectional correlation (Andrade, Mitchell, and Stafford, 2001). For instance, a typical merger wave may include two types of the acquirers: strategic leaders and followers (Carow et al., 2004) The “follower” firms tend to make acquisition decisions by observing the acquisition behavior of their peers, so they need an example of multiple “leading” acquirers before they contribute to the magnitude of a merger wave. The “leading” acquirers, on the other hand, tend to make their acquisition decisions by taking into account both the environmental shifts (economic shocks, deregulation events, industry trends) and their own internal resources that can serve as the sources of the future synergies with the targets (Brush, 1996; Gupta and Gerchak, 2002). We therefore expect that participation in a merger wave will depend on economic shocks as well as cross-sectional variation in the firms participating in a wave. Cross-sectional variation can result from the acquiring firms’ idiosyncratic capabilities and the different managerial motives driving the decision to acquire.

The strategic management literature suggests three primary motives for acquisitions: Synergy, managerialism, and hubris (Seth, Song and Pettit 2002). The synergy hypothesis implies that value of the combined firm can exceed the sum of the values of the acquirer and target because of an increase in operational efficiency, or an increase in market power (Singh and Montgomery, 1987; Chatterjee, 1986). This hypothesis assumes that the firm’s unique resources are not easily transferable because of the possibility of the factor market failure (Penrose, 1959;

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3 Caves, 1996; Williamson, 1971; Rugman, 1982). Furthermore, the resources are often tacit,
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5 organizationally embedded and co-specialized with other resources (Teece, 1986). Such a
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7 resource is almost impossible to put to a productive use without other, complementary resources.
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10 Making an acquisition of an entire firm helps to solve that problem, as the acquirer gets
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12 the desired resources bundled together with the resources they are embedded and co-specialized
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14 with. In addition, a firm can better evaluate and assimilate external knowledge obtained in an
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16 acquisition when the resources obtained are based on its existing knowledge base (Cohen and
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18 Levinthal, 1990; Carow et al., 2004). Firms are also likely to be able to identify opportunities and
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20 exploit operational synergies better within the same industry (Brush, 1996; Carow et al., 2004).
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22 In sum, the negative effects of the factor market imperfections can be managed effectively if they
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24 are internalized by the firm, especially in the case where both the acquirer and the target have a
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26 relatively high degree of the resource relatedness.
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31 Cross-border acquisitions can exhibit some characteristics that set them apart from the
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33 domestic transactions. For instance, imperfections and costs in product or factor markets may
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35 make domestic assets worth more to a foreign buyer than a domestic one. The literature has
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37 established that multinational firms must have some firm-specific advantage such as larger size
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39 (Caves, 1996; Dunning, 1973) or firm-specific capabilities (Barney, 1991; Lippman and Rumelt,
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41 1982) in order to overcome the advantage of the local competitor or its own liability of
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43 foreignness (Zaheer, 1995). Internalization theory argues that such firm-specific assets developed
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45 in the firms' home markets provide unique growth opportunities in international markets
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47 (Buckley and Casson, 1976; Caves, 1996; Dunning, 1980).
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52 Cross-border acquisitions can be riskier than domestic transactions: as the acquiring
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54 managers move away from their knowledge base by considering foreign targets, they will be
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3 more likely to make mistakes with regards to the potential sources of the synergy, resource
4 values and proper integration decisions (Haspeslagh and Jemison, 1991). On the other hand,
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6 globalization often allows growth that is consistent with strategy, opening up larger markets for a
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8 focused strategy. Unlike broadening domestically, expanding globally is likely to leverage and
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10 reinforce a company's unique position and identity (Porter, 1996). Harris and Ravenscraft (1991)
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12 and Doukas and Lang (2003) find that firms achieve higher gains from international
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14 diversification when they engage in core-related transactions.
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20 Hence, one key condition under which the firm becomes more likely to participate in the
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22 cross-border wave is it having synergistic capabilities. Cross-border acquirers are likely to value
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24 such synergies in the potential targets because of the higher threshold of success required to
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26 overcome the additional risks they face that domestic acquirers do not. Another key condition is
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28 a presence of the environmental forces that can lead to a shake up in the industry structure and
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30 thus to an increase in the acquisition activity. One such force is technological restructuring
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32 (Porter, 1986). Another possibility is industry-wide deregulation, which can significantly alter
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34 the opportunity set available for firms.
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39 In sum, we expect that when the industry exhibits signs of the significant changes in the
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41 organizational environment (technology shifts and/or deregulation), the firms with the
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43 capabilities to create synergistic combinations with the potential targets' resources ("synergistic
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45 capabilities") will exhibit higher propensity to make cross-border acquisitions:
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48 *Hypothesis 2a: Cross-border acquirers participating in a wave will be driven by*
49 *synergistic capabilities as well as economic shocks or deregulation in the organizational*
50 *environment*
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53 Acquisitions may also be driven by motives other than value creation. The managerialism
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55 hypothesis, rooted in agency theory, assumes that some managers can be motivated by personal
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3 value creation or risk reduction (Amihud and Lev, 1981). Although the shareholders tend to
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5 institute various internal control mechanisms in order to defend their interests (Fama, 1980), the
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7 entrenched managers can to some extent neutralize these mechanisms (Fredrickson, Hambrick
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9 and Baumrin, 1988). Acquisitions can also lead to the increased managerial compensation
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11 (Murphy, 1985) and reduced job loss risk for the firms' managers (Amihud and Lev, 1981;
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13 Dastidar and Weiner, 2007). Acquisitions motivated by these considerations often lead to the
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15 decrease in value of the acquiring firm (Jensen and Ruback, 1983; Singh and Montgomery, 1987;
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17 Bradley, Desai and Kim, 1988; Anand and Singh, 1997; Vermeulen and Barkema, 2001).

22 Bidders with highly valued equity may be more inclined to buy targets they perceive as
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24 being undervalued (Shleifer and Vishny, 2003). Target managers accept overvalued stock as
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26 payments for their equity because they have short time horizons. Even when agency and
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28 governance issues play relatively minor role, the rational managers can overestimate synergies
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30 during bull markets because they lack perfect information and use overvalued stock as payment
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32 for the target (Rhodes-Kropf and Viswanathan, 2004, Dong et al., 2003; Ang and Cheng, 2003).
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34 To generate a wave, there should be enough firms with high stock valuations or there should be
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36 enough "follower" firms. If there are significant number of transactions motivated by the high
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38 valuations and managerialist behavior, economic factors will not help predict participation in a
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40 wave:
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46 *Hypothesis 2b: Cross-border acquirers participating in a wave will be driven by broad*
47 *changes to the acquirer's home country stock market valuations.*

49 So far we assumed that the increase in the firms' interest in cross-border acquisitions can
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51 partially be explained by new technological developments or deregulation. Jensen (1993) argues
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53 that most merger activity in the 1970's was a result of excess capacity. Mergers within an
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55 industry can help firms remove duplicate functions, rationalize operations, and result in an
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3 overall decrease in the industry's asset base (Andrade and Stafford, 2004). Low industry Q or
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5 increased competition at home can drive them to seek opportunities abroad. Levinthal and Wu
6
7 (2006) suggest that many firm-specific resources are constrained by low management or product
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9 development expertise. Excess capacity resulting from low growth in the firms' current market
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11 will drive the firm to seek new opportunities with higher marginal returns. Maksimovic and
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13 Phillips (2001) show that firms sell assets in their less productive divisions and increase focus in
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15 their main industry as prospects in that industry improve.
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20 On the other hand, firms may be motivated by expansion when industry prospects are
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22 good. Larger size may reduce the firms' capital constraints and enable it to make larger capital
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24 investments (Andrade and Stafford, 2004). Jensen (1993) suggests that the primary motivation
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26 for mergers in the 70s and 80s was consolidation and the reduction of excess capacity. However,
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28 mergers in recent years may be motivated by expansion rather than contraction. The 90s are
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30 considered to be the decade of deregulation (Harford, 2005), which creates opportunities for
31
32 expansion. Rapid growth may also be the result of new technological advancements. The rate of
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34 growth of innovation has increased dramatically over the last decade.⁵ Consequently, we may
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36 expect the expansionary motive to dominate. The above arguments are summarized in the
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38 following alternative hypotheses:
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44 *Hypothesis 3a: Cross-border acquisitions are more likely if the acquirers experience low*
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46 *growth at the industry level domestically*

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48 *Hypothesis 3b: Cross-border acquisitions are more likely if the acquirers experience*
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50 *high growth at the industry level domestically*

51 METHODS

52 Data and Sample

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57 ⁵ According to the US Patent and Trademark Office, annual patent activity has increased by 90 percent since 1990
58 (http://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.pdf).
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3 We used the Securities Data Corporation's Mergers and Acquisitions database to collect
4 transaction-specific information on all acquisitions completed during 1985 - 2004. We include
5 all deals where either the target or the acquirer is a US firm, thus excluding the transactions that
6 involve foreign acquirers buying foreign targets. We exclude financial institutions and utilities,
7 because they are highly regulated across many countries (Mitchell and Mulherin, 1996). We also
8 exclude acquisitions with a deal value of less than 10 million dollars and those where the
9 acquirer purchased less than 50% of the target. Focusing on the large completed transactions
10 ascertains the availability and reliability of data. This approach is also consistent with previous
11 acquisition research (Davis and Stout, 1992; Hayward 2002, 2003). We further exclude internal
12 reconfigurations such as share repurchases and divestitures.
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27 The resulting sample of 34,350 deals includes 26,765 domestic acquisitions (acquisitions
28 of the US targets by the US acquirers), 3,544 deals with US acquirers and foreign targets, and
29 4,041 deals where the foreign acquirers purchase US targets. This sample includes both private
30 and publicly traded firms. We divide the dataset into three mutually exclusive samples: The first
31 sample includes domestic acquisitions, the second sample includes cross-border acquisitions
32 with US acquirers and foreign targets, and the third sample includes cross-border acquisitions
33 with foreign acquirers and US targets. Figures 1-4 provide an illustration of how those three
34 categories of acquisitions cluster by frequency and by industries between 1985 and 2004. Data
35 on the indicators of the industry-specific shocks were obtained from Compustat.
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Merger Waves

Several studies have identified merger waves for domestic acquisitions (Mitchell and Mulherin, 1996; Andrade, Mitchell and Stafford, 2001). We follow the Mitchell and Mulherin (1996) methodology and measure the fraction of firms within a particular industry that make a bid to acquire another firm. We group the data into three sub-periods (1985-1989; 1990-1999; and 2000-2006). These three sub-periods are characterized by distinct, easily identified merger waves with the first aggregate trough in 1990 due to the recession (Harford, 2005) and the next aggregate trough in 1999-2000 due to the dotcom bust. We analyze each sub-period separately.

We identify two sets of factors to evaluate the effect of the macroeconomic and the industry-level variables on the merger activity. The first set of factors capture economic shocks in a particular industry defined by 2-digit SIC code. These include:

Intangibles to total assets: This is a measure of the investment in research and development. Firms use proprietary or knowledge-based assets to gain a competitive advantage in international markets and as an important source of synergy when combined with that of the target firm. The value of these knowledge-based assets is enhanced in direct proportion to the scale of the firm's markets (Morck and Yeung, 1991); firms or industries with large investments in intangibles are motivated to expand their markets and spread high fixed costs associated with such assets.

Capital expenditures normalized by sales: This is a measure of the firms' capital outlays. Similar to the argument for knowledge-based assets, firms or industries with large capital outlays will be more likely to expand in order to leverage such assets.

Asset turnover (sales to total assets): This measures the sales dollars generated from each dollar of investments in assets (Healy et al., 1992). It is a measure of efficiency and firms with

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3 low profitability have a higher asset turnover. So asset turnover is negatively correlated with
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5 ROA.⁶ According to Brealey and Myers (1996) high asset turnover could indicate that the firm is
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7 working close to capacity.
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10 ***Return on assets*** (net income to assets): This is a performance measure that is widely
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12 used in the strategy literature.
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15 ***Cash flow margin*** (net income to sales): This is a measure of improvements in operating
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17 performance in an industry (Healy et al., 1992). It represents the actual economic benefits
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19 generated by the assets.
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22 ***Three year employee growth and Three year sales growth***: These are measures of the
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24 economic change experienced by the industry (Mitchell and Mulherin, 1996).
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27 We note that these factors can be highly correlated within each particular industry and
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29 thus could cause problems with multicollinearity if simultaneously included in a regression
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31 model (Harford, 2005). To address this problem we extract the first principal component of these
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33 shock variables. At this stage, any industry with less than 5 observations is deleted. In addition to
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35 the economic shock factor we include a deregulation dummy which takes the value one if the
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37 target industry is experiencing deregulation in a particular year. We use the list of deregulation
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39 events as identified by Harford (2005). There are no significant deregulation events after 1999⁷.
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43 The second set of factors aims to capture the extent to which the local capital markets can
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45 be perceived by the acquiring managers as overvalued. This set of factors can thus be used to test
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47 the market-driven explanation for the cross-border merger waves. Market driven factors include
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49 three year return, market-to-book ratio, and the variance of the three year return. We calculate
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51 industry median values for each variable.
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56 ⁶ ROA and Asset turnover are negatively correlated for the cross-border and the domestic sample.

57 ⁷ The Sarbanes-Oxley Act of 2002 represented a significant change in the U.S. regulatory climate. However, it
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59 equally affects public firms in all industries.
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3 High capital constraints can also affect the start of a merger wave by decreasing the
4 number of the acquirers (Shleifer and Vishny, 1992; and Eisfelt and Rampini, 2003). To control
5 for tight liquidity we include a dummy variable that equals one if the industry market-to-book
6 ratio is less than the time series median market-to-book ratio.
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12 Economic and regulatory shocks, as well as market valuations are necessary but not
13 always sufficient conditions for the initiation of the merger waves (Harford, 2005). Thus, our
14 next set of measures focuses on the firm and industry characteristics that can influence the firms'
15 decision to participate in a wave. To test for such firm-level factors we combine the Mitchell and
16 Mulherin (1996) methodology with the Carow et al. (2004), methodology in identifying merger
17 waves. The latter approach first identifies the peak year and then works backwards and forwards
18 to find the troughs – that is, the year before the peak which had 1/3rd less the number of
19 transactions. Following that approach, we identify a 2 year peak for each time period by industry
20 and then identify the start and the end of the wave (Carow et al., 2004). In some cases where the
21 trough is not clearly identifiable we set it to be the peak year +/- 4 years. This is consistent with
22 the average difference between the peak year and trough year for the industries where the peak
23 and trough can be identified. We use this approach in logit regressions to predict the probability
24 of existence of domestic and cross-border waves based on the characteristics of the home
25 country, industry of the target and the acquirer, and market characteristics of the acquirer's home
26 country. The dependent variable is the probability that a firm will participate in a wave by
27 making at least one acquisition during the specified time period; the variable takes the value of
28 one if the acquisition happens during the wave and zero otherwise. We estimate separate logit
29 regressions for domestic and cross-border deals.
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54 We define synergistic capabilities using the following variables:
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Resource-based Relatedness: Related strategic resources are often seen as critical to firm performance. An acquirer with prior experience in the target firm's industry can be expected to be in a better position to capitalize on opportunities in that industry (Harris and Ravenscraft, 1991). Most measures of relatedness rely on SIC codes that offer limited information on the types of strategic interrelationships that are important for diversified firms (Teece, 1982); the shared SIC codes may not be highly correlated with the degree of relatedness between the firms' resources. Hence, we use a structural equivalence matrix constructed from the pattern of technology flows and input-output data among major groups of industries (Robins and Wiersema, 1995; Scherer, 1982). For each combination of target and acquirer firm the variable is defined as $R_{ij} = P_i r_{ij} + P_j r_{ij}$, where P_i is percentage of sales by the acquirer in industry "i", P_j is percentage of sales by the acquirer in industry "j", r_{ij} is correlation between i and j.

We assume that acquirer sales and target sales are all in the primary industry of the acquirer and target respectively. Therefore, r_{ij} is equivalent to the resource-based correlation between the acquirer and target industries. These correlations are obtained from Robins and Wiersema (1995).

SIC-based Relatedness Measure: The resource-based relatedness variable described above is only available for manufacturing firms. At the same time, a large proportion of the recent cross-border mergers and acquisitions activity is in the services sector (Black, 2000). To measure relatedness for non-manufacturing firms we include a relatedness dummy that equals one if the target and the acquiring firm have the same SIC code on the two-digit level.

Intangibles / Sales: This measure can be an important indicator of the potential synergistic motives in the acquisition. The market transactions involving the knowledge-based assets in the presence of transactions costs, particularly across national borders is likely to be

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3 problematic due to the difficulty of valuing the intangibles. On the other hand, if those market
4 transactions are internalized through cross-border acquisitions, an important source of synergy
5 can be created (Caves, 1996), as the acquirer's intangibles can be effectively redeployed in the
6 target firms' countries. Harris and Ravenscraft (1991) provide support for this argument and
7 show that cross-border takeovers occur more often in R&D intensive industries than do US
8 takeovers.⁸

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11 Furthermore, we also include two variables to account for the possibility that a perceived
12 overvaluation of the firm's stock can materially affect the managers' motivation to make
13 acquisition and hence may influence the merger waves. These variables intend to capture the
14 extent to which the managers' decision to acquire may be driven by inflated stock-market
15 valuations:
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20 ***Stock Payment:*** A dummy which takes the value one if the method of payment is
21 primarily stock (greater than 60%).⁹ Managers are likely to use stock to pay for the acquisition if
22 they believe their stock to be overvalued. Capital markets are aware of this agency problem
23 therefore stock transactions exhibit lower abnormal returns than cash transactions (Moeller and
24 Schlingemann, 2005).
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29 ***Market-to-book ratio*** for the acquiring firm: This factor aims to capture market
30 perceptions of the firm's growth opportunities and the value of its intangible assets. High
31 market-to-book values are typical of firms with high average returns on capital or high earnings
32 on book equity (Fama and French, 1995), thus potentially indicating the situations where the
33 acquirer's managers may believe their firm's stock to be overvalued.
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57 ⁸ As an alternative measure we also include log of intangibles

58 ⁹ We also used alternative definitions using a 50% and a 70% cutoff, with no changes in the results
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4 *Tobin's Q*: Acquiring firms from low growth industries may seek new growth
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6 opportunities through acquisitions. To measure the potential effect of the variation in the growth
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8 rates across industries, we include the median Tobin's Q (market value plus debt divided by the
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10 book value of the firm's total assets) for the acquirer's industry.
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12 *Control variables*: Some firms can be more inclined to diversify by acquisitions rather
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14 than by other methods, for instance because they may have accumulated sufficient experience in
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16 making acquisitions in the past. Such firms would be more likely to have the organizational
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18 structure and external relationships conducive to selecting acquisitions as the preferred method
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20 of diversification, like more knowledgeable corporate development groups. Prior acquisition
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22 experience can be an important determinant of the firms' current acquisition behavior (Haleblian
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24 and Finkelstein, 1999). Therefore, we include a count of the acquisitions made by each firm in
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26 the past as one of the control variables. We do not include the squared term because it is highly
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28 correlated with number of past acquisitions (0.95). Further, since large firms are more likely to
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30 acquire than the small firms because of higher resource endowments, we also control for the
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32 absolute size of the firms in our sample, measured as log of total assets. Similarly, we control for
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34 the firms' economic performance by including their returns on assets (ROA), as more successful
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36 firms can be systematically different from others in their acquisitive behavior. We also include
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38 the measure of the firm's leverage to control for the firms debt capacity: Firms with higher debt
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40 capacity are better able to finance acquisitions.
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49 **RESULTS AND DISCUSSION**

50 **Univariate evidence**

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52 The results of our preliminary analysis are summarized in the Fig. 1 through 4. As is
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54 evident from Figures 1 to 3 domestic acquisitions (US-US deals), acquisitions with foreign
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3 acquirers and domestic targets (foreign-US deals), and acquisitions with domestic acquirers and
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5 foreign targets (foreign-US deals) all exhibit wave-like patterns. The peak years for domestic
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7 deals are 1998-1999; for foreign-US deals are 1999-2000; and for foreign-US deals are 1998-
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9 1999. It appears that the overall peak of the merger wave for US acquirers regardless of whether
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11 the target is domestic or foreign is the same. This finding provides preliminary support for the
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13 conjecture that cross-border acquisitions occur in waves. At this stage the analysis does not
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15 distinguish between industries.
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20 Figure 4 presents the cross-border acquisition activity by the industry, identifying the top
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22 5 industries with cross-border mergers for each of three time periods. We observe that the overall
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24 industry focus has changed over time from manufacturing to services and industry patterns differ
25
26 for the three sub-samples. Overall, our sample contains observations that exhibit differences in
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28 acquisition waves, across time, across acquirers (domestic and foreign), across targets (domestic
29
30 and foreign), and across industries.
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34 Table 1 presents descriptive statistics for the three time periods. We use industry averages
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36 for all the economic and stock market-driven variables. The number in the first column of the
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38 table is the average of the means across all industries. The averages appear to be quite stable
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40 across the time periods. The correlations of these variables are not high except for the correlation
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42 between employee growth and sales growth (.86). Since waves occur at the industry level it is
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44 not surprising that the overall averages are similar.
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49 Insert Table 1 about here
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53 We categorize all the acquisitions in the sample as contributing to either cross-border or
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55 domestic merger wave and examine them separately. Are cross-border waves sufficiently
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3 different from domestic waves and should they be treated separately? We test for location and
4
5 scale differences between the two samples using a variety of statistical tests¹⁰. The results are
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7 highly significant, so we can reject the null hypothesis that there is no difference between cross-
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9 border and domestic waves: The Kolmogorov-Smirnov test - a non-parametric test that does not
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11 make any assumptions about the distribution of the two samples – has a p-value of <.0001.
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15 **Regression models**

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17 In order to systematically examine the factors influencing the initiation of the cross-
18
19 border merger waves, we ran a series of multivariate regressions. Table 2 presents the results for
20
21 the effects of the macroeconomic, industry level and stock market-based variables on the merger
22
23 waves. The dependent variable is the fraction of acquisition deals in a particular industry in a
24
25 particular year. This variable takes on different values across the two samples: Domestic and
26
27 cross-border. The regressions examine the effect of US economic and market forces on the wave
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29 for the two samples.¹¹ To avoid any issues of multicollinearity, we compute the principal
30
31 component of the economic shock variables described in the previous section - Economic Shock
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33 Factor. Alternatively, we include the individual components of the economic shock factor except
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35 sales growth, which is highly correlated with employee growth (Table 2, column 4).
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45 Table 2 presents results of the test of the hypotheses H1a and H1b. For the cross-border
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47 sample 3-year return is the only stock market-driven variable to have an impact on the wave in
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49 the 1980's. In the 1990's and 2000's the market-driven variables are generally insignificant. The
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54 ¹⁰ ANOVA, Kruskal-Wallis test based on the Wilcoxon scores, the Kolmogorov-Smirnov test and the Cramer-von
55 Mises Test

56 ¹¹ In a previous version of the paper we examined the impact of US and non-US economic and market factors for a
57 cross-border sample of US acquirers of foreign targets. We found that home country factors matter more for US
58 acquirers and host country factors do not. Consequently we focus on US factors.
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3 economic shock factor does not appear to affect the level of cross-border merger activity in all
4 three subperiods – possibly because some information could be lost in principal component
5 analysis. When we examine the individual components of the economic shock factor (column 3),
6 deregulation is significant in the 80s and the 90s. Industries with high median return on assets
7 and low asset turnover experience increased cross-border merger activity.¹² In the 1990's,
8 industries with high employee growth experience a greater incidence of cross-border mergers
9 while in the 2000's, it is industries with high employee growth and knowledge-based assets that
10 experience more cross-border mergers.
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22 The results for domestic waves are somewhat similar to the results for cross-border
23 waves. In the 80s, the 3-year return and the 3-year return variance are significant. However, the
24 magnitude of the 3-year return variance is very small. When the access to capital is tight, it has a
25 significant effect on domestic waves, but not on cross-border waves. In the 80s and 90s the
26 market timing variables are generally insignificant for domestic merger waves. The economic
27 shock factor appears to have no impact but the individual components of the shock index are
28 significant. In all the sub-periods, industries with high median performance experience increased
29 merger activity. In the 80s and 90s industries with low levels of knowledge based assets
30 experienced increased merger activity. In the 2000s, however, knowledge based assets are no
31 longer significant in determining the incidence of domestic waves. In fact, industries with low
32 investment exhibit more domestic merger activity: Domestic merger waves in the more recent
33 past tend to occur in high performance, high growth but low investment industries.
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50 Overall, our results for the domestic acquisition waves are consistent with the findings of
51 Harford (2005): the economic variables are generally significant in explaining the start of a
52 domestic merger wave, while perceived market overvaluation does not have a significant effect.
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58 ¹² As noted in the previous section, ROA and asset turnover are generally negatively correlated.
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3 The organizational environment factors that are important for the initiation of the domestic
4 waves also appear to play important role in the case of cross-border merger waves.
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8 Table 3 presents results of the tests of hypotheses H2a and H2b. The dependent variable
9 equals one if the acquisition is part of wave and zero otherwise. The sample in Panel A includes
10 US acquirers of cross-border targets and the sample in Panel B includes US acquirers of
11 domestic targets. Panel A shows that cross-border acquirers with synergistic capabilities have a
12 higher probability of participating in a wave, providing support for H2a. The resource-based
13 relatedness variable turned out negative and marginally significant in the second regression. This
14 is contrary to what we would expect. Further examination reveals that resource-based relatedness
15 turns negative when we control for industry effects. Since both variables capture industry related
16 effects, this is not surprising. The sum of the two synergy variables is positive. The economic
17 shock index is strongly significant: Cross-border acquirers from an industry experiencing an
18 economic shock are less likely to participate in a wave.
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38 At the same time, our results suggest that the acquirers from industries experiencing
39 domestic deregulation are neither more nor less likely to participate in the wave. These results
40 are consistent with H2a and indicate that the economic shocks may lead to better domestic
41 opportunities for further growth, thus attenuating the attractiveness of the cross-border
42 acquisitions for the potential acquirers. Panel B represents the results for the domestic acquirers;
43 those results are also consistent with H2a.¹³
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51 Economic shocks can be positive or negative. A negative shock, like a sudden increase in
52 oil prices, would increase costs across multiple industries and reduce the propensity to acquire.
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57 ¹³ Firm level intangibles to sales ratios were included in the regressions. This variable was consistently insignificant
58 and is therefore not reported. An alternative measure – log of intangibles – also yields the same results.
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3 On the other hand, a positive shock, like an introduction of a more effective technology may
4 induce firms to increase the number of acquisitions in order to fully exploit the opportunities
5 created by such technology. In Panel C we examine the impact of the individual components of
6 the economic shock index. Cross border acquirers from industries with low levels of intangible
7 or knowledge based assets and lower profitability are more likely to participate in a wave. Firms
8 from industries with high employee or sales growth (employee and sales growth are highly
9 correlated) are more likely to participate in a wave.¹⁴ These results seem to suggest that the
10 primary motive for cross-border acquisitions can be the search for new markets and new growth
11 opportunities rather than an attempt to increase economies of scale for pre-existing investment
12 capabilities. Domestic wave participants are more likely to come from industries with high
13 employee growth, high investments (Capital Expenditures / Assets), and low asset turnover -
14 industries with excess capacity (Brealey and Myers, 1996). The primary motive for domestic
15 acquisitions appears to be the exploitation of current assets or capabilities.¹⁵

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34 Acquiring firms participating in a wave do not appear to be influenced by market-driven
35 factors, so that the hypothesis H2b is rejected: Agency issues do not appear to play a prominent
36 role in the initiation and propagation of the cross-border merger waves. We also examine the
37 effect of industry growth on the firms' probability to participate in a wave (Table 3, column 5).
38 Median industry Tobin's Q has positive and significant effect on the probability to acquire for
39 both cross-border and domestic acquirers. Our results support H3b and do not support H3a¹⁶.
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48 One possible explanation of the observed direction of the relationship is that whenever an
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52 ¹⁴ Several papers have measured economic shocks as employee and sales growth (Mitchell and Mulherin, 1996;
53 Andrade and Stafford, 2004).

54 ¹⁵ Chow tests of the difference between the regression coefficients across the cross-border and the domestic sample
55 are significant.

56 ¹⁶ We also repeated the regressions in Table 4 with the individual components of the economic shock index. Tobin's
57 Q is positive and significant for both cross-border and domestic wave participants. The sign and significance of the
58 economic shock variables do not change.
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3 industry faces a restructuring event, higher-growth firms may be more likely to make
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5 acquisitions of the foreign targets (Andrade and Stafford, 2004) than the lower growth firms. In
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7 the high median Q industries the proportion of the high-growth firms should be higher, thus
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9 creating a situation when cross-border acquisition participation is positively correlated with the
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11 firm belonging to such an industry. To test this conjecture, we include firm-level Tobin's Q. For
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13 the cross-border regressions, Tobin's Q is insignificant. For the domestic regressions it is
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15 strongly significant and positive suggesting that successful firms acquire domestically. This
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17 provides further confirmation that domestic waves can be motivated in large part by the firms'
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19 intent to redeploy their current capabilities.
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25 Thus far we have discussed our results for firms participating in a wave relative to non-
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27 participants. We do not distinguish between first movers and second movers. Pioneers may be
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29 able to establish a competitive advantage by acting early (Lieberman and Montgomery, 1988).
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31 Carow et al. (2004) find evidence that first movers experience positive abnormal returns and
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33 outperform other acquirers in acquisition waves. A comparison of the results for first movers –
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35 deals during the period from the start of the wave to the peak and the overall results show
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37 interesting differences. The deregulation dummy which was previously insignificant for all wave
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39 participants is highly significant for first movers in cross-border waves and marginally
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41 significant for first movers in domestic waves. The other variables do not substantially change in
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43 sign or significance.¹⁷ This suggests that economic factors are particularly important drivers for
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45 first movers. Pioneers are likely to have an information advantage relative to their peers and are
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47 likely to act upon their superior synergistic capabilities.
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54 CONCLUSION

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57 ¹⁷ For the cross-border sample (individual economic component regression) median industry intangibles to total
58 assets becomes insignificant. However, median industry net income becomes highly significant.
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3 This paper represents a first step in the systematic analysis of the industry-level and firm-
4 level factors affecting cross-border merger waves. Our findings confirm that cross-border
5 acquisitions do indeed cluster in waves, similar to domestic transactions. Furthermore, we find
6 evidence that the cross-border merger waves tend to follow the identifiable economic or
7 regulatory industry-specific shocks in the acquiring firm's country. The acquiring managers'
8 perceptions of the stock market overvaluation, on the other hand, do not appear to play a
9 significant role in the cross-border acquisition decision making. Interestingly, deregulation
10 events seem to decrease the firms' propensity to acquire foreign targets, possibly because such
11 events tend to create many more possibilities domestically.

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25 With respect to the firm-level effects, our results suggest a more pronounced difference
26 between the drivers of the cross-border and domestic waves. While domestic waves can be more
27 often associated with the increased number of firms seeking to redeploy their existing
28 capabilities, cross-border waves seem to be associated with situations where multiple firms in a
29 given industry try to acquire new capabilities. The firm-level factor that turns out to be strongly
30 associated with the likelihood of making a cross-border acquisition is the relatedness between the
31 acquirer's and the foreign target's resources, providing additional support for the argument that
32 many firms use cross-border transactions in order to acquire new synergistic capabilities.

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44 In general, we find that while many of the industry factors important for the initiation and
45 propagation of the domestic merger waves are also important determinants of the pace of the
46 cross-border acquisition activities, firm-level motivation to engage in a cross-border deal may be
47 quite different from the factors affecting the domestic acquisition decision-making. Lower
48 growth firms may have potentially more motivation to search for the growth opportunities
49 abroad, but it is the more successful firms in the higher-growth industries that are more likely to
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3 make acquisitions of the foreign targets, underlining the notion that the cross-border acquisitions
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5 are often made for the purpose of acquiring new capabilities.
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8 The results of the study have interesting policy implications. It appears that cross-border
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10 waves are primarily driven by the search for growth opportunities and that deregulation does not
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12 increase the incidence of such mergers. This suggests that public policy makers need not be
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14 concerned that deregulation may have anti-competitive effects resulting from a flood of cross-
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16 border consolidation. In fact, national governments can potentially benefit from increased tax
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18 receipts. Furthermore, while anti-trust concerns may be an issue for some mergers, there does not
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20 appear to be a general trend towards industry concentration.¹⁸ Our finding that firms use cross-
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22 border transactions in order to acquire new synergistic capabilities rather than to redeploy the
23
24 existing resources seems to lend support to the “reverse internalization” hypothesis: domestic
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26 acquirers of the foreign targets are on average more likely to adopt new technologies and/or
27
28 operational capabilities from foreign targets than to be involved in a process of diffusion of
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30 domestic technologies abroad. Consequently, concerns about weak intellectual property rights
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32 regimes outside the US may be overstating the extent of the problem of technology
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34 appropriation, while overlooking the positive effects of the cross-border acquisitions on the
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36 home country’s access to new operational capabilities.
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57 ¹⁸ Ghemawat and Ghadar (2000) report Herfindahl indices for a number of industries and show no increase in
58 industry concentration.
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Figures 1-3. Frequency distributions of the domestic and cross-border deals.

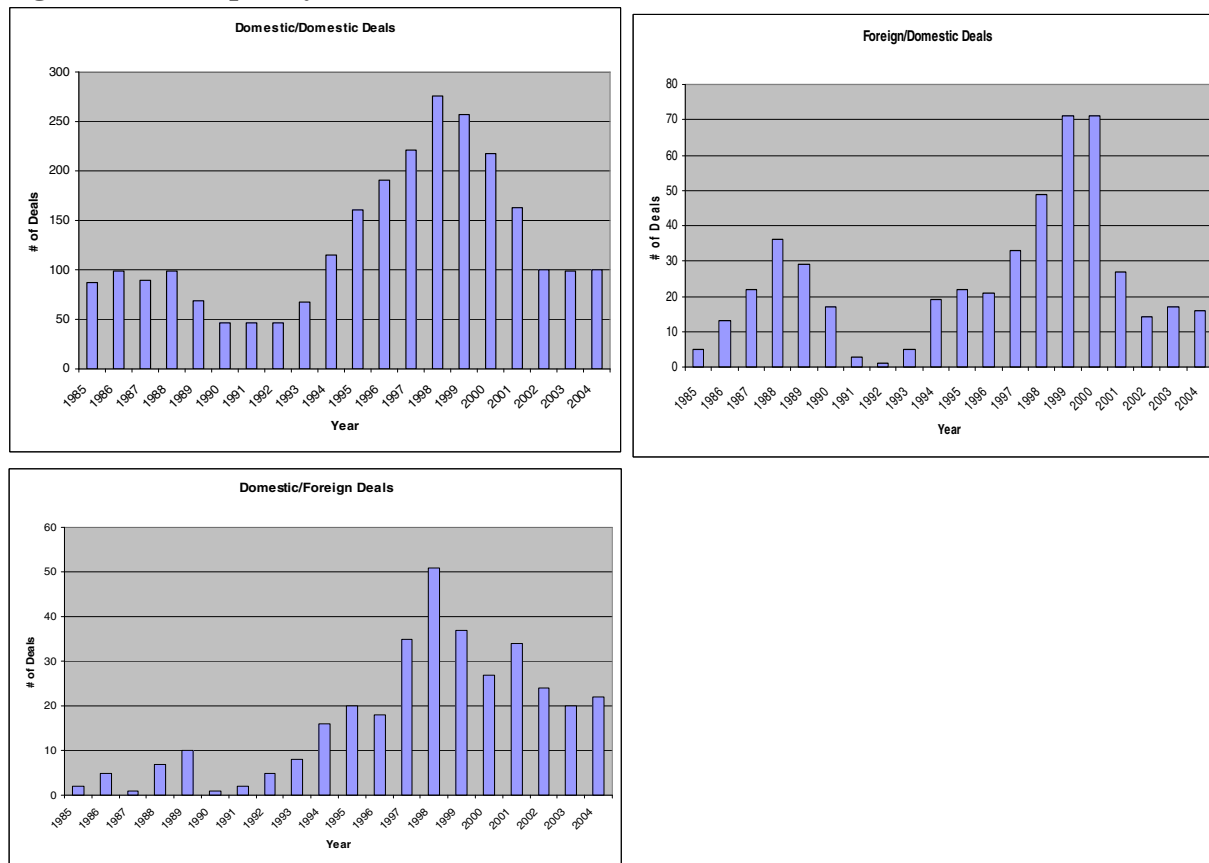


Figure 4. Cross-border merger activity by the industry
Top 5 industries

1985-1990	1991-1995	1996-2000	2001-2004
Chemicals and Allied Products (28)	Business Services (73)	Business Services (73)	Business Services (73)
Communications (48)	Communications (48)	Communications (48)	Electronic and Other Equipment (36)
Industrial Machinery and Equipment (35)	Chemicals and Allied Products (28)	Electronic and Other Equipment (36)	Chemicals and Allied Products (28)
Oil and Gas Extraction (13)	Industrial Machinery and Equipment (35)	Industrial Machinery and Equipment (35)	Instruments and Related Products (38)
Business Services (73)	Oil and Gas Extraction (13)	Chemicals and Allied Products (28)	Communications (48)

Table 1. Descriptive Statistics and Correlations

Time Period	Cross-Border Sample		Domestic Sample	
	Mean	Std Dev	Mean	Std Dev
1985-1989				
Net Income/Sales	-1.03	2.02	-0.87	1.85
Asset Turnover	1.33	0.66	1.38	0.63
Capital Expenditures / Assets	0.08	0.03	0.08	0.03
Intangibles / Assets	0.06	0.07	0.05	0.07
Employee Growth	23.92	78.14	29.35	91.36
ROA	-0.28	0.99	-0.23	0.89
Market-to-Book Ratio	2.81	5.39	2.56	5.65
3-Year Return	23.73	63.16	28.99	69.20
1990-1999				
Net Income/Sales	-1.70	8.26	-1.89	10.33
Asset Turnover	1.39	0.78	1.44	0.78
Capital Expenditures / Assets	0.08	0.05	0.07	0.05
Intangibles / Assets	0.06	0.10	0.05	0.10
Employee Growth	5.80	78.61	5.32	74.78
ROA	-0.12	0.38	-0.04	1.64
Market-to-Book Ratio	0.55	29.53	0.76	28.20
3-Year Return	1.07	0.50	1.07	0.48
2000-2006				
Net Income/Sales	-4.00	7.46	-3.57	6.98
Asset Turnover	1.27	0.67	1.29	0.68
Capital Expenditures / Assets	0.06	0.03	0.06	0.03
Intangibles / Assets	0.17	1.33	0.18	1.31
Employee Growth	1.40	6.28	1.35	6.12
ROA	-2.10	17.94	-2.13	17.54
Market-to-Book Ratio	0.55	16.10	2.08	29.74
3-Year Return	1.12	0.26	1.15	0.39

Panel B: Correlation Coefficients									
Cross-border Sample	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Net Income/Sales	1.00								
Asset Turnover	0.19	1.00							
Capital Expenditures / Assets	-0.06	-0.08	1.00						
Intangibles / Assets	-0.02	-0.05	-0.02	1.00					
Employee Growth	0.02	0.03	0.03	-0.01	1.00				
ROA	0.03	-0.08	-0.01	0.00	0.01	1.00			
Sales Growth	0.01	-0.01	0.00	0.00	0.86	0.00	1.00		
Market-to-Book Ratio	-0.01	-0.05	0.00	0.00	0.01	0.01	0.00	1.00	
3-Year Return	0.04	0.01	0.02	-0.01	0.22	0.01	0.01	0.01	1.00
Domestic Sample									
Net Income/Sales	1.00								
Asset Turnover	0.19	1.00							
Capital Expenditures / Assets	-0.02	-0.06	1.00						
Intangibles / Assets	-0.01	-0.06	-0.03	1.00					
Employee Growth	0.02	0.03	0.06	-0.01	1.00				
ROA	-0.05	-0.07	-0.01	-0.02	0.01	1.00			
Sales Growth	0.01	-0.01	0.00	0.00	0.79	0.00	1.00		
Market-to-Book Ratio	-0.01	-0.06	-0.02	-0.01	0.01	-0.01	0.00	1.00	
3-Year Return	0.04	0.02	0.05	-0.01	0.25	0.01	0.01	0.01	1.00

Table 2. Regressions of Fraction of M&A deals on economic and market factors (Industry median values)

<i>Time Period: 1985-1989</i>	Cross-border waves			Domestic waves		
	(1)	(2)	(3)	(4)	(5)	(6)
Market-to-Book	-0.007 (0.17)	-0.008 * (0.10)	-0.008 (0.18)	-0.006 (0.54)	-0.009 (0.34)	-0.008 (0.47)
3-Year Return	0.002 *** (0.00)	0.002 *** (0.00)	0.002 *** (0.01)	0.003 *** (0.01)	0.003 *** (0.01)	0.003 *** (0.01)
σ (3-Year Return)	0.000 (0.36)	0.000 (0.37)	0.000 (0.26)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Deregulation Dummy		-0.017 (0.19)	-0.026 ** (0.05)		-0.023 (0.42)	-0.036 (0.19)
Econ Shock Index		0.005 (0.71)			-0.008 (0.78)	
Tight * Econ Shock Index		-0.022 (0.31)	-0.021 (0.22)		-0.127 *** (0.00)	-0.133 *** (0.00)
Intangibles / Assets			-0.118 (0.28)			-0.416 * (0.06)
Employee Growth			0.000 (0.83)			0.000 (0.96)
ROA			0.454 *** (0.01)			0.608 ** (0.04)
Asset Turnover			-0.010 ** (0.03)			-0.012 (0.18)
Net Income / Sales			-0.086 (0.15)			0.007 (0.95)
Capital Expenditures / Assets			0.124 (0.26)			0.168 (0.36)
Constant	0.039 *** (0.00)	0.042 *** (0.00)	0.039 *** (0.00)	0.092 *** (0.00)	0.099 *** (0.00)	0.093 *** (0.00)
N	126	126	126	156	156	156
R-Sq	0.08	0.11	0.21	0.12	0.23	0.32

<i>Time Period: 1990-1999</i>	Cross-border waves			Domestic waves		
	(1)	(2)	(3)	(4)	(5)	(6)
Market-to-Book	-0.002 (0.47)	-0.002 (0.38)	-0.004 (0.25)	0.001 (0.94)	0.003 (0.80)	0.010 (0.45)
3-Year Return	0.145 (0.39)	0.174 (0.30)	-0.016 (0.93)	0.598 (0.38)	0.724 (0.30)	-0.422 (0.56)
σ (3-Year Return)	0.000 (0.53)	0.000 (0.52)	0.000 (0.52)	0.000 (0.52)	0.000 (0.58)	0.000 (0.90)
Deregulation Dummy		-0.013 (0.15)	-0.015 (0.08) *		-0.040 (0.32)	-0.026 (0.46)
Econ Shock Index		0.014 (0.24)			-0.031 (0.53)	
Tight * Econ Shock Index		-0.012 (0.47)	0.000 (0.98)		-0.034 (0.63)	-0.039 (0.40)
Intangibles / Assets			-0.012 (0.86)			-0.963 (0.00) ***
Employee Growth			0.028 (0.04) **			0.260 (0.00) ***
ROA			0.350 (0.00) ***			-0.337 (0.38)
Asset Turnover			-0.023 (0.00) ***			-0.071 (0.00) ***
Net Income / Sales			-0.096 (0.22)			0.930 (0.00) ***
Capital Expenditures / Assets			-0.061 (0.36)			-0.347 (0.19)
Constant	-0.102 (0.55)	-0.130 (0.44)	0.087 (0.64)	-0.481 (0.49)	-0.608 (0.38)	0.620 (0.39)
N	361	361	361	399	399	399
R-Sq	0.00	0.02	0.12	0.00	0.01	0.22

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<i>Time Period: 2000-2006</i>	Cross-border waves			Domestic waves		
	(1)	(2)	(3)	(4)	(5)	(6)
Market-to-Book	0.003 (0.23)	0.003 (0.30)	-0.001 (0.81)	0.005 (0.38)	0.005 (0.42)	0.001 (0.82)
3-Year Return	0.078 (0.29)	0.079 (0.29)	-0.099 (0.16)	0.217 * (0.07)	0.236 (0.05)	-0.075 (0.50)
σ (3-Year Return)	0.000 (0.76)	0.000 (0.91)	0.000 (0.94)	0.000 (0.72)	0.000 (0.83)	0.000 (0.86)
Deregulation Dummy						
Econ Shock Index		0.020 (0.19)			0.041 (0.20)	
Tight * Econ Shock Index		-0.022 (0.30)	0.004 (0.78)		-0.054 (0.22)	-0.003 (0.90)
Intangibles / Assets			0.160 * (0.07)			0.125 (0.52)
Employee Growth			0.049 *** (0.00)			0.133 *** (0.00)
ROA			0.171 *** (0.01)			0.275 * (0.06)
Asset Turnover			-0.025 *** (0.00)			-0.052 *** (0.00)
Net Income / Sales			0.098 (0.14)			0.269 * (0.06)
Capital Expenditures / Assets			-0.244 *** (0.01)			-0.681 *** (0.00)
Constant	-0.038 (0.62)	-0.039 (0.62)	0.176 ** (0.02)	-0.123 (0.32)	-0.142 (0.25)	0.247 ** (0.04)
N	210	210	210	221	221	221
R-Sq	0.01	0.02	0.28	0.02	0.03	0.31

p-values are in parentheses

* indicates significance at the 10 percent level (two-tailed test)

** indicates significance at the 5 percent level (two-tailed test)

*** indicates significance at the 1 percent level (two-tailed test)

Table 3. Logit Regressions of Acquirers (Wave Participants vs. Non-wave Participants) on synergistic capabilities, economic shocks, and market factors using US data

Panel A: Cross-border Sample (US acquirers of foreign targets)										
	(1)		(2)		(3)		(4)		(5)	
Resource-Based										
Relatedness	-0.528		-0.630	*	-0.456		-0.560		-0.453	
	(0.14)		(0.09)		(0.25)		(0.17)		(0.26)	
Related Dummy										
(2-digit SIC)	0.781	***	0.831	***	0.683	**	0.719	**	0.590	*
	(0.01)		(0.01)		(0.05)		(0.04)		(0.10)	
Stock Dummy					-0.112		-0.060		-0.159	
					(0.72)		(0.85)		(0.62)	
Market-to-Book					-0.008		-0.009		-0.012	
					(0.20)		(0.18)		(0.12)	
Econ Shock Index			-2.100	***			-2.037	***	-2.243	***
			(0.00)				(0.01)		(0.00)	
Deregulation										
Dummy			-0.285				-0.305		-0.285	
			(0.62)				(0.65)		(0.67)	
Industry Median										
Tobin's Q									0.504	**
									(0.02)	
Size	0.008		0.013		-0.044		-0.024		-0.015	
	(0.91)		(0.85)		(0.59)		(0.77)		(0.85)	
Leverage	-0.679		-0.669		-0.989		-0.928		-0.593	
	(0.25)		(0.27)		(0.15)		(0.19)		(0.42)	
ROA	-1.168		-1.415		-1.592		-1.795		-1.818	
	(0.20)		(0.12)		(0.21)		(0.15)		(0.15)	
Past M&A										
Experience	0.034	**	0.036	**	0.031	**	0.032	*	0.031	*
	(0.04)		(0.03)		(0.05)		(0.06)		(0.08)	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
N	809		809		673		673		673	
Pseudo R-sq	0.05		0.06		0.06		0.08		0.09	

p-values are in parentheses

* indicates significance at the 10 percent level (two-tailed test)

** indicates significance at the 5 percent level (two-tailed test)

*** indicates significance at the 1 percent level (two-tailed test)

Panel B: Domestic Sample (US acquirers of US targets)										
	(1)		(2)		(3)		(4)		(5)	
Resource-Based Relatedness	-0.618	***	-0.611	***	-0.578	**	-0.558	**	-0.484	*
	(0.01)		(0.01)		(0.04)		(0.04)		(0.08)	
Related Dummy (2-digit SIC)	0.354	**	0.353	**	0.240		0.234		0.136	
	(0.04)		(0.04)		(0.22)		(0.23)		(0.49)	
Stock Dummy					0.126		0.123		0.059	
					(0.42)		(0.43)		(0.71)	
Market-to-Book					0.000		0.000		0.000	
					(0.68)		(0.69)		(0.69)	
Econ Shock Index			0.380				0.620		0.712	*
			(0.28)				(0.12)		(0.07)	
Deregulation Dummy			-0.125				-0.124		-0.040	
			(0.68)				(0.73)		(0.91)	
Industry Median Tobin's Q									0.360	***
									(0.00)	
Size	0.125	***	0.126	***	0.084	*	0.085	*	0.093	*
	(0.01)		(0.01)		(0.10)		(0.10)		(0.07)	
Leverage	-0.491		-0.486		0.018		0.019		0.304	
	(0.12)		(0.12)		(0.96)		(0.96)		(0.44)	
ROA	-2.831	***	-2.836	***	-2.439	***	-2.447	***	-2.215	***
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
Past M&A Experience	-0.003		-0.003		0.001		0.001		-0.004	
	(0.71)		(0.71)		(0.93)		(0.93)			
Industry Effects	Yes		Yes		Yes		Yes		Yes	
N	4,214		4,214		3,259		3,259		3,259	
Pseudo R-sq	0.03		0.03		0.03		0.03		0.05	

p-values are in parentheses

* indicates significance at the 10 percent level (two-tailed test)

** indicates significance at the 5 percent level (two-tailed test)

*** indicates significance at the 1 percent level (two-tailed test)

Panel C: Individual Components of the economic shock factor			
	Cross-border Sample		Domestic Sample
Resource-Based Relatedness	-0.421		-0.577 **
	(0.34)		(0.04)
Related Dummy (2-digit SIC)	0.604		0.145
	(0.13)		(0.49)
Stock Dummy	-0.445		0.101
	(0.20)		(0.54)
Market-to-Book	-0.011		0.000
	(0.27)		(0.74)
Industry Median Intangibles / Assets	-18.505 ***		-2.052
	(0.00)		(0.34)
Industry Median Employee Growth	10.731 ***		3.567 ***
	(0.00)		(0.00)
Industry Median ROA	-25.434 ***		-8.093
	(0.00)		(0.20)
Industry Median Asset Turnover	-1.037		-0.958 ***
	(0.11)		(0.00)
Industry Median Net Income / Sales	7.958		-8.211
	(0.11)		(0.12)
Industry Median Capital Expenditures / Assets	-11.618		16.999 ***
	(0.23)		(0.01)
Deregulation Dummy	0.275		0.075
	(0.69)		(0.84)
Size	-0.107		0.053
	(0.25)		(0.34)
Leverage	-0.994		0.285
	(0.24)		(0.51)
ROA	-1.238		-1.302 *
	(0.32)		(0.07)
Past M&A Experience	0.037 *		-0.003
	(0.06)		(0.75)
Industry Effects	Yes		Yes
N	670		3,140
Pseudo R-sq	0.23		0.12