Fire-Sale FDI or Business as Usual?

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Abstract

Motivated by a set of stylized facts, we develop a model of cross-border mergers and acquisitions (M&As) to study foreign direct investment (FDI) in emerging markets. We compare acquisitions undertaken during financial crises – so called fire-sale FDI – with acquisitions made during non-crisis periods to examine whether the outcomes differ in the ways predicted by the model. Foreign acquisitions are driven by two sources of value creation. First, acquisitions by a foreign firm relax the targets credit constraint (i.e., a liquidity motive). Second, acquisitions exploit operational synergies between the target and the acquirer (i.e., a synergistic motive). During crises credit conditions tighten in the target economy and the liquidity motive dominates. The model predicts that during crisis relative to non-crisis periods, (1) the likelihood of foreign acquisitions is higher; (2) the proportion of foreign acquisitions in the same industry is lower; (3) the average size of ownership stakes is lower; and (4) the duration of acquisitions is lower (i.e., acquisition stakes are more likely to be flipped). We find support for (1) but not for the other three predictions. The results thus suggest that foreign acquisitions in emerging markets do not differ in these important ways between crisis and normal periods.

Keywords: Fire sales; foreign direct investment; cross-border mergers and acquisitions; financial crises; flipping.
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1 Introduction

Fire-sale foreign direct investment (FDI) is a term Krugman (2000) used to describe the surge in foreign acquisitions of Asian firms during the 1997-98 financial crisis at the same time that portfolio investors sold off their holdings of Asian assets.[1] Krugman cited anecdotal evidence from the financial press that firms in distress due to the tightening of credit conditions, the sudden depreciation of the nominal exchange rate, and the rapid deterioration in domestic macroeconomic conditions were sold to foreign investors at discounted prices.[2] The appropriate policy responses to such sales during financial crises depends on whether they create long-term gains for the host country from technological or operational synergies between the acquirers and the targets or whether the sales are a form of short-term liquidity provision.[3] The existence of fire sales raises broader questions about the role that FDI plays in economies disrupted by aggregate financial shocks.

Definitive evidence of the impact of fire-sale episodes in emerging markets economies (EMEs), however, has proven elusive for several reasons.[4] Asset prices are hard to predict even at the best of times, so tests of fire sales based on asset valuations during financial crises in EMEs are problematic. The surge in foreign investment during EME crises also coincided with a broader and more long lasting global wave of cross-border acquisitions (see Moeller et al., 2005) and a substantial increase in domestic mergers in emerging markets. While the volume of foreign acquisitions during the Asian crisis seems impressive relative to the pre-crisis level of activity, it is less dramatic when viewed against the backdrop of the increase in M&A activity during that period across the globe.

In order to address the empirical challenges of evaluating the characteristics of crisis-time FDI, we proceed in three steps. First, we document some key empirical features of foreign M&A activity in emerging markets over an extended period of time. We label these features as "business as usual". Second, we develop a theoretical model of FDI that captures these benchmark features. Third, we use the model to guide an empirical investigation of the differences between fire-sale FDI and business as usual using a large data set of foreign and domestic acquisitions in emerging markets. Overall, our findings indicate that even though fire-sales may have occurred during emerging market financial crises, as documented by contemporary journalistic accounts and academic papers such as Aguiar and Gopinath (2005), they did not differ significantly along certain important dimensions

[1] Graham and Krugman (1995) also use the term fire-sale FDI to describe the acquisition of large stakes in U.S. firms by foreign acquirers during the late 1980s.

[2] The popular press also abounded with articles about fire sales, notably from South Korea, with titles such as "Korean Companies are Looking Ripe to Foreign Buyers" (New York Times, December 27, 1997) and "Crisis Creates Rush of Takeover Bids by Foreigners in Korea" (South China Morning Post, February 11, 1998).

[3] Examples of the available policy options are the transfer of corporate control to foreign residents versus the provision of publicly funded loans or equity stakes, as the policy discussion regarding General Motors in 2009 illustrates. In addition, policy makers have also considered restrictions on foreign ownership during periods of financial instability (e.g., Loungani and Razin, 2001; Mody and Negishi, 2001).

[4] We use the term "emerging-markets economies" throughout the paper but acknowledge that this classification has changed over time. It refers to countries classified as such by the IMF during the period of their respective financial crises.

from business as usual.

Our theoretical model of FDI synthesizes the two principal models of fire-sale FDI proposed by Aguiar and Gopinath (2005) and Acharya et al. (2011). As in Aguiar and Gopinath (2005), we model crises as periods of illiquidity in financial markets.[5] Foreign firms have an advantage in the market for corporate control in that they do not face financial constraints and operate the target firm more efficiently than a domestic firm based in an emerging market.[6] We extend Aguiar and Gopinath's framework to allow for differences in payoffs to synergistic acquisitions (i.e., those involving acquirers and targets in the same industry) and non-synergistic acquisitions. We also extend the model to consider what fraction of the target firm is bought and the conditions under which acquired targets may be resold, or flipped.

The model not only nests these two existing models of fire-sale FDI, but it also captures the "business as usual" characteristics of foreign M&A activity in emerging markets during the years 1990-2007. The stylized facts we document suggest that while the number of foreign acquisitions in emerging markets varies across time, business as usual is characterized by a preponderance of synergistic acquisitions (63% of foreign acquisitions are synergistic), a large share of partial foreign ownership stakes (53% of foreign acquisitions result in partial ownership upon completion), and low divestiture rates (about 7% of majority foreign acquisitions are flipped). The model thus provides a benchmark to examine how foreign acquisitions differ in these three dimensions between crisis and non-crisis periods and enables us to test these predictions empirically.

The main insight provided by the model is that there are two sources of surplus from foreign acquisitions – the efficiency gains due to operational synergies (OS) and the valuation gains associated with the relaxation of the target firm's liquidity constraint (LC). These two sources of surplus provide foreign acquirers incentives to purchase targets in emerging-market economies both during normal times and during financial crises. The more a target firm is credit constrained, the larger LC is relative to OS. Thus, the relative importance of each source of surplus in the aggregate depends on the proportion of domestic firms in the economy that are credit constrained. During normal times target firms are less liquidity constrained, so most foreign acquisitions are motivated by OS. However, LC can become a relatively more important motive in the aggregate during financial crises because of an abundance of liquidity-constrained target firms. Under these circumstances, it is possible that the proportion of non-synergistic acquisitions, which are driven primarily by LC, increases, and even acquiring firms that do not have large operational synergies with the target acquire distressed firms. In our model, acquisitions with higher operational synergies are characterized by higher ownership stakes and lower divestiture rates. The model therefore predicts that foreign acquisitions during crisis episodes are on average characterized by smaller ownership stakes and higher subsequent divestiture rates.

[5] See also Shleifer and Vishny (1992), Shleifer and Vishny (1997), Pulvino (1998), and Campbell et al. (2011) for empirical and theoretical analyses of fire sales in closed economies.

[6] We also consider cases where foreign acquiring firms are less efficient than domestic ones.

We test the model's implications using data from 30,000 foreign and domestic acquisitions in sixteen emerging markets between 1990 and 2007. The data set is well-suited to testing the predictions of a model of fire-sale FDI. First, it contains a broad cross-section of countries, which permits us to examine whether there are regional differences in the effects of crises on FDI. The focus of other papers that have looked at this question was a sample of Asian countries affected by the 1997-98 Asian financial crises (e.g., Aguiar and Gopinath, 2005; Acharya et al., 2011). The longer time period spanned by our data set enables us to examine whether their conclusions regarding the importance of fire-sale FDI are sensitive to lower frequency trends in foreign acquisition activity in emerging markets. In other words, it gives us a clear empirical benchmark of what constitutes business as usual in the market for corporate control in EMEs.[7] Finally, the data set includes foreign acquisitions that are flipped, which enables us to test whether the duration of foreign acquisitions made during crisis periods are different. To the best of our knowledge, this paper is the first one to analyze the ownership dynamics of emerging-market acquisitions during crises for such a broad cross-section of countries.[8]

The paper has four key findings. First, we confirm in our larger sample the finding in Aguiar and Gopinath (2005) that the proportion of foreign acquisitions increases during crises. The results indicate that a crisis is associated with a 30% increase in the probability of a foreign acquisition of a typical target relative to the non-crisis mean. While the probability of a foreign acquisition increases during crises, the evidence in favor of the other effects of fire-sale FDI is weak. The second prediction of the model is that because foreign firms are liquidity constrained during crises, there is a proportional increase in non-synergistic acquisitions driven primarily by the undervaluation of targets due to financial distress relative to synergistic acquisitions. If same-industry acquisitions are taken as the proxy for matches based on operational synergies, there is little evidence of a decline in such matches during financial crises. Third, the model predicts that the average size of the ownership stake acquired by foreign firms during crises decreases during financial crises because non-synergistic acquirers buy smaller stakes on average. We find only weak evidence of such a systematic change in foreign ownership stakes between crisis and non-crisis periods. Although ownership stakes by foreign acquirers decrease on average by about 1 percentage point, the effect is neither economically nor statistically significant.

The fourth result concerns the duration of crisis-time matches. The theory suggests that foreign acquisitions that occur during crises are more likely to be divested or flipped than those that occur during regular times. Intuitively, among the matches between foreign acquirers and domestic

[7] Rossi and Volpin (2004) and Erel et al. (2012) also study the determinants of cross-border M&As. In contrast to these two papers, however, we focus on the industry composition, size, and divestiture process of foreign acquisitions in emerging markets.

[8] Although several papers have examined acquisitions and subsequent divestitures in the United States (Ravenscraft and Scherer, 1991; Kaplan and Weisbach, 1992; Bergh, 1997; Ang and Mauck, 2011), few have focused on the prevalence of this phenomenon in emerging markets. One exception is Holan and Toulan (2006), who look at divestitures by foreign companies in Argentina between 1990 and 2002.

targets that occur during crises, the ones less driven by synergies are the ones that are likely to be divested. Because a larger proportion of such non-synergistic matches are predicted to occur during crisis periods, the crisis cohort is more likely to be subject to divestitures. We find little evidence for this hypothesis. During non-crisis periods, synergistic acquisitions exhibit lower flipping rates than non-synergistic acquisitions. During crises, however, the rates at which synergistic and non-synergistic acquisitions are flipped are not statistically different. Our results on flipping differ from those reported in Acharya et al. (2011). In a smaller sample of transactions, they find evidence of flipping and an increase in the size of controlling stakes during crises. Overall, there is no strong evidence of flipping in the data.

The conclusions of the empirical analysis are broadly robust to alternative empirical specifications, the use of alternative definitions of crises, and the exclusion of macroeconomic covariates. Taken together, our findings show that while there was a surge in foreign acquisitions during financial crises in emerging markets, the acquisitions were not significantly different from business as usual along the three dimensions mentioned above. In fact, our evidence suggests that the surge in acquisitions during the crises was part of a long term trend of synergistic value creation by developed market firms in EMEs and did not constitute a transfer of ownership to inefficient or opportunistic foreign arbitrageurs. The evidence is consistent with existing studies on asset returns that find both acquiring (Chari et al., 2010) and target firm (Bris and Cabolis, 2008) shareholders benefit from EME acquisitions.[9]

The rest of the paper is organized as follows. We describe the prominent features of corporate acquisitions in emerging markets in Section 2. We then derive the implications of our model of fire-sale FDI in Section 3. Section 4 reports the results of the regressions that we estimate to test the model's predictions. Section 5 concludes.

2 Features of Corporate Acquisitions in Emerging Markets

In this section, we discuss the main features of mergers in emerging-market economies that motivate the model we construct. The purpose of this discussion is to document what constitutes business as usual in the market for corporate control in EMEs.

We first depict the long-term trends in FDI and M&A volumes for the two main regions that we conduct our analysis, Latin America and Asia. Figure 1 shows the value of acquisitions by foreign firms and FDI in Latin America and Asia over the 1990-2007 period using data from UNCTAD.[10]

[9] Weitzel et al. (2014) analyze the implications of asset fire-sales for the number of cross-border transactions and the price of corporate assets using data on corporate transactions in 27 EU countries between 1999 and 2012. They also conclude there is little evidence in favor of the hypothesis along these two dimensions.

[10] The data were collected from various years of UNCTAD's *World Investment Report*. UNCTAD defines FDI as an investment that involves a long-term relationship between an entity resident in one economy and an entity resident in an economy other than that of the foreign direct investor. It reflects a lasting interest and control by the foreign entity in the domestic entity. FDI implies that the investor exerts a significant degree of influence on the management of the enterprise resident in the other economy.

There is a surge in acquisitions in Latin America in 1996-1998 following the Mexican crisis in 1995 and a subsequent surge in capital flows into Asia in 1999. Acquisitions in both regions leveled off in the early 2000s and increased again in Asia after 2004. Thus the surge of acquisitions during crises that has been characterized as fire-sale FDI may have been part of the broader trend of increased capital flows to emerging-market economies rather than related to financial market conditions. Figure 2 decomposes the acquisitions in each region into those involving foreign and domestic acquirers. The figure shows that the increases in foreign acquisitions in each region coincided with increases in domestic acquisitions.

For the empirical analyses we use data from the Securities Data Company (SDC) Thompson's International Mergers and Acquisitions database, which reports public and private merger and acquisition transactions involving at least a 5% ownership stake in the target company.[11] The SDC database contains all of the domestic and foreign acquisitions that occurred between 1990 and 2007 for a large set of EMEs, of which we use sixteen: Argentina, Brazil, Chile, China, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Singapore, South Africa, South Korea, Taiwan, Thailand and Vietnam. These EMEs account for the vast majority of M&A transactions in the SDC database.[12]

The rest of the tables in this section refer to the SDC M&As data. Table 1 shows corporate transactions by location of target firms. The data set includes 29,728 transactions in emerging-market economies, of which the largest number occur in Brazil, China, Malaysia, Singapore, South Africa, and South Korea. Over two-thirds of all acquisitions occur in Asia, and about another fifth occur in Latin America. Over half of transactions in Latin America involve a foreign acquirer, while a quarter of the transactions in Asia involve a foreign acquirer. Foreign acquisitions account for 31% of the transactions in our database.[13]

The breakdown of foreign acquirers by country is shown in Table 2. The United States accounts for 34% of foreign acquisitions in emerging markets, Europe another 34%, and Asia 19%. About 97% of the foreign transactions involve an acquirer from the United States, Europe, Japan, Hong Kong, Australia, Canada, or New Zealand. In the model developed in Section 3, we thus assume that foreign acquirers are from developed markets and do not confront the same liquidity constraints as their EME targets.

Table 3 decomposes the number of acquisitions in each sector by target and by acquirer. The concentration of transactions on the diagonal indicates that the majority of transactions occur

[11]SDC obtains information from more than 200 English and foreign-language news sources; U.S. Securities and Exchange Commission filings and the filings from SDC's international counterparts; trade publications; newswire reports; and the proprietary surveys of investment banks, law firms, and other advisory firms. For each transaction, the SDC database provides target- and acquiring-firm characteristics, including the names of the firms; their countries of origin, industries, and primary SIC classifications, the per cent of shares sought and finally acquired in the transaction; and the date on which the transaction was completed.

[12]Although the database includes both mergers and acquisitions, mergers account for only a small fraction of the total cross-border transactions. For this reason, we refer only to acquisitions in the rest of the paper.

[13]We drop all foreign acquisitions made by acquirers located in our sample of emerging market economies. We restrict our analysis to developed market acquirers to maintain a close correspondence with the model derived in Section 3.

between firms within the same one-digit SIC category. Table 4 shows a similar pattern for the foreign transactions contained the data set. We regard this as prima facie evidence that matches between firms in the same industry lead to operational synergies and are hence more common, especially for foreign acquisitions. In the theoretical model, acquisitions that involve firms in the same SIC category are thus considered "synergistic" acquisitions. In both tables, however, there are also a significant number of acquisitions in the off-diagonal cells, suggesting a rich pattern of cross-industry acquisitions. Roughly 45% of all acquisitions and 37% of foreign acquisitions are non-synergistic (i.e., they involve firms in different industries). Our model generates a distribution of synergistic and non-synergistic transactions, and the distribution varies with aggregate financial conditions.

Tables 3 and 4 also suggest that the FIRE sector plays a special role in acquisitions. Acquirers in the FIRE sector purchase stakes in firms in different SIC categories in larger quantities than acquirers in other industrial categories, suggesting that acquisitions initiated by financial firms play an important role in the market for corporate control. We will examine the specific role played by financial firms as cross-industry acquirers in the empirical test of the model, even though the model is specified in more general terms.

Table 5 shows that partial acquisitions of targets are also an important characteristic of the data. Averaged over the full sample, acquirers obtain an ownership stake of 50% or more of the target in 71% of the transactions. 52% of all domestic transactions and 53% of the foreign transactions involve the acquisition of partial stakes. We incorporate this feature of the data into the model by permitting the foreign acquirer to purchase a partial stake in the target.

Finally, Table 6 shows the fraction of firms that are resold after an initial acquisition.[14] It reports these fractions for foreign ownership stakes greater than 50%, and for 100% ownership stakes. Whichever criterion one adopts for foreign ownership, the overall fraction of firms that are resold is small. For example, for the 50% threshold about 7% of the foreign acquisitions are resold, which is similar to the findings of Acharya et al. (2011) for a sample of Asian countries affected by the 1997-98 crisis. In an extension of our benchmark two-period model, we allow acquisitions to be resold or flipped. In our model, as in Acharya et al. (2011), acquisitions that occur during financial crises may lack long term operational synergies. Therefore, when the financial crisis subsides and asset prices recover there is a greater incentive for foreign acquirers to flip their holdings. We explicitly test this hypothesis in Section 4.

3 A Model of Foreign Acquisitions in Emerging Markets

The stylized facts presented in the preceding section suggest there is time-variation in the frequency of foreign acquisitions in emerging markets, and that these acquisitions are characterized

[14] Details of the method used to identify targets that are resold or flipped are presented in Section 4.3.

by rich patterns of within- and cross-industry matches, differing ownership stakes acquired, and differing lengths of ownership. In this section, we develop a theoretical model of fire-sale FDI that incorporates these features – what we consider business as usual – and then ask what this model would predict about foreign acquisitions made during financial crises. We begin by extending the two-period model in Aguiar and Gopinath (2005) to capture asymmetries in synergistic and non-synergistic acquisitions and to allow for partial acquisitions. The two-period model is used to derive the first three propositions regarding the composition and size of acquisitions. The analysis of the resale of a target is explored in a three-period version of the model, which leads us to the fourth proposition about flipping. We then confirm numerically that the first three propositions go through in the three-period case. The analysis is so structured because the algebra for the two-period model is more transparent and allows for a simple diagrammatic representation of the model's main intuition and conclusions.

3.1 Model Setup

There are two periods labelled $t = 1, 2$. At the start of period 1, a fully domestically owned firm i in industry j is characterized by an initial capital stock $K_{ij,1}$, a borrowing constraint $\bar{D}$, and period 1 profits $\pi_{ij,1}$. The borrowing constraint $\bar{D}$ is assumed to be the same across all firms and industries for simplicity. The amount of liquidity available to the firm, l_{ij}, is defined as $l_{ij} \equiv \bar{D} + \pi_{ij,1} \in [\underline{l}, \bar{l}]$. In period 1, the firm chooses its optimal investment I_{ij} subject to the borrowing constraint and anticipated period 2 productivity, $A_{ij,2}$. As in Aguiar and Gopinath (2005), we make the following assumptions: (i) firms in any industry j are price takers in all markets; (ii) the price of a unit of capital is 1 in all industries; (iii) $A_{ij,2}$ summarizes all differences among firms and industries with respect to product prices and differential effects of real exchange rate movements in period 2; and (iv) the discount rate and interest rate are both 0.

With the firm subscript i suppressed, the value of a firm under (full) domestic ownership in industry j, V_j^D, can be expressed as

$$V_j^D(K_{j,1}, A_{j,2}, \pi_{j,1}, \bar{D}) = \max_{I_j} \{\pi_{j,1} - I_j + A_{j,2}F(K_{j,2}) + (1-\delta)K_{j,2}\} \tag{3.1}$$

subject to

$$K_{j,2} = (1-\delta)K_{j,1} + I_j$$

$$I_j \leq \bar{D} + \pi_{j,1} \equiv l_j$$

where $F' > 0$ and $F'' < 0$. The profits in the first period $\pi_{j,1}$ are used for investment for the second period, I_j, which adds to the second-period capital stock, $K_{j,2}$, by the equation of motion of capital. Output, $A_{j,2}F(K_{j,2})$, and the undepreciated capital stock, $(1-\delta)K_{j,2}$, comprise profits in the second period. If $I_j > \pi_{j,1}$, then investment is financed by debt up to the borrowing limit $\bar{D}$.

Following Aguiar and Gopinath (2005), we assume that foreign acquirers are financially un-

constrained. This could be due to their larger size relative to the target's financing needs (see Chari et al., 2010), or deep financial markets in their country of origin where they can borrow for acquisitions. This assumption is plausible because almost all of the foreign acquirers in our sample come from advanced economies. A foreign firm makes its own line of financing available to the target as long as it owns a positive share of the firm, α.[15] The value of a fraction α of the same domestic firm in industry j to a foreign owner from industry m, V^F_{mj}, is thus given by

$$V^F_{mj}(K_{j,1}, A_{j,2}, \pi_{j,1}) = \max_{I_j,\alpha}\{\alpha\Big(\pi_{j,1} - I_j + \phi_{mj}A_{j,2}F(K_{j,2}) + (1-\delta)K_{j,2}\Big) - \Gamma - c(\alpha)\} \qquad (3.2)$$

subject to

$$K_{j,2} = (1-\delta)K_{j,1} + I_j$$

and

$$0 \leq \alpha \leq 1,$$

but no liquidity constraints.

The productivity of the firm under the foreign owner is determined by the function $\phi_{mj} \equiv \phi_{mj}(\alpha)$, with $\phi \geq 1$, $\phi' > 0$ and $\phi'' \leq 0$. We assume that foreign acquirers are more efficient than domestic firms ($\phi \geq 1$). There is much evidence that foreign acquisitions in EMEs improve productivity (see Yasar and Morrison Paul, 2007; Blalock and Gertler, 2008; Arnold and Javorcik, 2009, for example). The productivity improvement is an increasing function of the fraction of the firm purchased by the foreign acquirer ($\phi' > 0$). This could be due to underlying contracting frictions, so that a foreign owner with greater ownership is able to exercise more control over domestic managers prone to moral hazard, and hence better able to implement improvements in productivity. Alternatively, the foreign owner may be more willing to transfer superior technology to an acquired firm if she owns more of it. The precise friction that leads to $\phi' > 0$ is left unspecified for simplicity. Foreign acquirers in industry j are also assumed to be better managers of target firms in their own industry due to superior information or expertise at managing industry-specific assets. This assumption is captured by $\phi_{jj}(\alpha) \geq \phi_{mj}(\alpha)$ with the equality holding only for $\alpha = 0$. A number of other theoretical papers such as Williamson (1988), Shleifer and Vishny (1992), and Almeida et al. (2011) make similar assumptions about within-industry synergies. We provide a brief review of this literature, and some empirical evidence justifying this assumption, in our empirical

[15] An alternative would be to assume that the degree to which the financial constraint of the target firm is relaxed is increasing in the stake acquired by the firm, i.e., under α foreign ownership $I_j \leq \bar{D}_j(\alpha)$, with $\bar{D}_j'(\alpha) > 0$. It is clear that the case in which this constraint does not bind is equivalent to our assumption that the optimal investment will be financed for any α. In the case where $I_j = \bar{D}_j(\alpha)$, the maximization problem can be written entirely as a function of α: $\max_\alpha\{\alpha\Big(\pi_{j,1} - \bar{D}_j(\alpha) + \phi_{mj}A_{j,2}F(\bar{D}_j(\alpha) + (1-\delta)K_{j,1}) + (1-\delta)(\bar{D}_j(\alpha) + (1-\delta)K_{j,1})\Big) - \Gamma - c(\alpha)\}$. The solution to this problem would pin down optimal ownership and investment. Thus our simplifying assumption would not change the nature of the foreign firm's problem substantively. The implications of this alternative formulation is further discussed at relevant points in the text.

section.

The acquisition of ownership α also requires a cost $\gamma \equiv \Gamma + c(\alpha)$ that is made up of a fixed component, Γ, and a variable component, $c(\alpha)$, that depends on the size of the acquisition. The fixed cost represents the cost of acquiring information about a foreign market and searching for a suitable target. The variable costs, with $c' > 0$ and $c'' \geq 0$, may be due to more stringent regulatory requirements and due diligence for larger deals, or the presence of acquisition premia.[16] There is no uncertainty or asymmetric information about ϕ, Γ and c.

Let I_j^* and α^* denote the optimal values for these variables from the foreign firm's maximization problem, $K_{j,2}^* = (1-\delta)K_{j,1} + I_j^*$, and $\phi^* = \phi(\alpha^*)$. Then π_{mj}^* (π_{jj}^*), the maximized gross (of acquisition costs) profits of the firm under foreign non-synergistic (synergistic) control, are

$$\pi_{mj}^* = \pi_{j,1} - I_j^* + (1-\delta)K_{j,2}^* + \phi_{mj}^* A_{j,2} F(K_{j,2}^*) \tag{3.3}$$

$$\pi_{jj}^* = \pi_{j,1} - I_j^* + (1-\delta)K_{j,2}^* + \phi_{jj}^* A_{j,2} F(K_{j,2}^*). \tag{3.4}$$

respectively. If S_{mj} (S_{jj}) be the corresponding surpluses generated, foreign non-synergistic and synergistic acquisitions are feasible and optimal compared to domestic ownership when

$$S_{mj} \equiv V_{mj}^F + (1-\alpha_{mj})\pi_{mj}^* - V_j^D > 0 \Leftrightarrow \pi_{mj}^* - \Gamma - c(\alpha_{mj}) - V_j^D \geq 0 \tag{3.5}$$

and

$$S_{jj} \equiv V_{jj}^F + (1-\alpha_{jj})\pi_{jj}^* - V_j^D > 0 \Leftrightarrow \pi_{jj}^* - \Gamma - c(\alpha_{jj}) - V_j^D \geq 0, \tag{3.6}$$

respectively.[17]

Figure 3 plots the locus of points that yield zero surplus for non-synergistic acquisitions (dotted line labelled $S_{mj} = 0$) and synergistic acquisitions (solid line labelled $S_{jj} = 0$) on the target firm liquidity-productivity plane.[18] The shapes of $S_{mj} = 0$ and $S_{jj} = 0$ can be understood as follows.

[16] Partial acquisitions that involve ownership of less than 100% of a firm comprise roughly half of the foreign acquisitions in our sample of transactions. We need some curvature in either of the two functions $\phi(\alpha)$ and $c(\alpha)$ to have the possibility of interior solutions (i.e., less than 100%) for α. Thus $c'' > 0$ is not strictly necessary for our conclusions.

[17] We leave the price paid by the foreign acquiring firm unspecified since our empirical analysis does not focus on prices. We could assume like Aguiar and Gopinath (2005) that if acquired, the price paid is the result of Nash bargaining and is $V_j^D + \beta S_{mj}$. Here $\beta \in (0,1)$ captures the domestic owner's bargaining power and V_j^D is the outside option for the domestic firm. Our model would then predict that transaction prices are lower in a crisis, just as in Aguiar and Gopinath (2005). Their paper provides evidence that acquisition prices decline during financial crises. The surplus from the acquisition, and hence the returns, are shared between the acquirer's and target's shareholders depending on their respective bargaining power. There is existing evidence of positive returns for both these parties. Chari et al. (2010) show that acquiring firms from developed countries earned abnormal returns of 1.16% from majority acquisitions in emerging markets during the period 1986 to 2006. Bris and Cabolis (2008) provide evidence from the years 1989 to 2002 of higher returns to emerging market targets' shareholders when the acquiring firm is from a country that has better investor protection, the foreign acquirer in our theory.

[18] The supports of liquidity and productivity are $[\underline{l}, \bar{l}]$ and $[\underline{A}, \bar{A}]$. Figure 3 is meant to be a stylized representation of the zero-surplus conditions for expositional purposes. The precise shape of the zero-surplus lines depends on assumptions about functional forms and the supports of productivity and liquidity.

S_{mj} is defined as $\pi^*_{mj} - \gamma - V^D_j$. First, the profits of a target firm under foreign ownership net of the cost of the acquisition, $\pi^*_{mj} - \gamma$, do not depend on the liquidity position of the target since the foreign owner is financially unconstrained. The same firm under domestic ownership has an optimal amount of investment for each level of productivity, but it is only able to invest up to the level of liquidity that it has available ($I_j \leq l_j$). For any given level of productivity, the $S_{mj} = 0$ line shows the minimum amount of investment, and hence liquidity, that a domestic firm needs to bring V^D_j up to $\pi^*_{mj} - \gamma$. The positive slope of the zero-surplus line reflects the fact that higher productivity leads to an increase in $\pi^*_{mj} - \gamma$, which can be seen from a straightforward application of the Envelope Theorem. Thus the domestic firm needs higher investment, and hence higher liquidity, to have a matching increase in V^D_j that keeps $S_{mj} = 0$. The same reasoning applies to the shape of the $S_{jj} = 0$ line. The fact that the $S_{jj} = 0$ line lies to the right of the $S_{mj} = 0$ reflects our assumption that same-industry acquisitions generate benefits related to synergies ($\phi_{jj}(\alpha) \geq \phi_{mj}(\alpha)$). As a result, $\pi^*_{jj} - \gamma$ rises faster than $\pi^*_{mj} - \gamma$ for a given rise in $A_{j,2}$, by the Envelope Theorem.[19] Thus the domestic firm requires a higher amount of investment, and hence a higher minimum liquidity, to match $\pi^*_{jj} - \gamma$ than $\pi^*_{mj} - \gamma$. Clearly, the surpluses are positive to the left of the respective zero-surplus lines and negative to the right.[20]

Now consider the arbitrary level of productivity, $A'_{j,2}$, considered in Figure 3. We can define two liquidity cut-offs, $\bar{l}_{mj}(A'_{j,2})$ and $\bar{l}_{jj}(A'_{j,2})$, as functions of this productivity. This divides the range of liquidity for domestic firms into three parts: **(I)** Of all the firms with productivity $A'_{j,2}$, those above $\bar{l}_{jj}(A'_{j,2})$ optimally remain under domestic control since neither $S_{mj} \geq 0$ nor $S_{jj} \geq 0$ when $l \in (\bar{l}_{jj}, \bar{l}]$. **(II)** Those between $\bar{l}_{mj}(A'_{j,2})$ and $\bar{l}_{jj}(A'_{j,2})$ are optimally under foreign synergistic control since only $S_{jj} \geq 0$ if $l \in (\bar{l}_{mj}, \bar{l}_{jj}]$. Targets in this case have sufficient liquidity for their domestic owners to have greater profits than a prospective non-synergistic acquirer, but not enough liquidity to exceed the profits of a synergistic acquirer. This category of target firms for which $l \in (\bar{l}_{mj}, \bar{l}_{jj}]$ are optimally allocated to foreign synergistic acquirers since non-synergistic acquirers would not even bid for these targets. **(III)** Target firms with liquidity between $\underline{l}$ and $\bar{l}_{mj}$ could be owned by both synergistic and non-synergistic acquiring firms since both add value to the firms above that generated by domestic owners. Both $S_{mj} \geq 0$ and $S_{jj} \geq 0$ if $l \in [\underline{l}, \bar{l}_{mj}]$. For this category of target firms, all else equal, synergistic acquisitions are optimal since $S_{jj} > S_{mj}$, but non-synergistic ones are also feasible. These firms for which $l \in [\underline{l}, \bar{l}_{mj}]$ are assumed to be randomly matched with synergistic and non-synergistic acquiring firms in the proportion f and $1 - f$ respectively. The fraction f is a parameter in our model. We let f lie in the interval $(\frac{1}{2}, 1)$ to reflect the superior efficiency of synergistic acquirers.[21] In our model synergistic acquiring

[19] This conclusion holds as long as synergies are sufficiently large, or the variable costs of acquiring more ownership do not rise too sharply.

[20] For expositional simplicity, we describe the situation in which the target firm is liquidity constrained. The zero-surplus lines are horizontal in the liquidity-unconstrained range because V^D_j increases in l_j only as long as the liquidity constraint binds. The presence of these kinks does not affect our conclusions.

[21] In a more complicated model, f could be the equilibrium outcome of some process. For example, a model with

firms would always be able to outbid non-synergistic firms in a frictionless market for corporate control since $S_{jj} > S_{mj}$. As Aguiar and Gopinath (2005) remark, however, the market for corporate control in emerging-market economies is not perfectly competitive and frictionless; emerging-market target firms rarely receive offers from multiple prospective acquirers. We introduce the allocation mechanism outlined above as a simple way to reflect our data, where 37% of the foreign acquisitions are non-synergistic.[22]

Thus Figure 3 summarizes the main takeaways from this section: that there exist the two liquidity cut-offs $\bar{l}_{mj}$ and $\bar{l}_{jj}$; target firms that have liquidity in the interval $l \in (\bar{l}_{mj}, \bar{l}_{jj}]$ are acquired by foreign synergistic acquirers; and of the target firms for which $l \in [\underline{l}, \bar{l}_{mj}]$, a proportion f goes to foreign synergistic acquirers while a proportion $1 - f$ ends up in the hands of foreign non-synergistic acquirers. In the following section we characterize normal versus crisis periods by the distribution of liquidity across firms and use the cut-offs derived above to analyze the likelihood of foreign acquisitions and their sectoral composition in and out of crises.

3.2 The Industry Composition of Acquisitions

Let the industry identity of the foreign firm and firm- or industry-specific characteristics of the target other than $A_{ij,2}$ and γ be summarized by the vector $\theta_{ij,m}$. Denote as $\vec{\theta}$ the tuple $(A_{ij,2}, \gamma, \theta_{ij,m})$. As in Aguiar and Gopinath (2005), the function $G_N(l)$ defined over $l \in [\underline{l}, \bar{l}]$ denotes the benchmark or normal-period cumulative distribution function of liquidity across domestic firms, conditional on $\vec{\theta}$. The equivalent distribution during a financial crisis is $G_C(l)$.[23] A financial crisis is characterized as $G_N(l)$ first-order stochastically dominating $G_C(l)$.[24] In words, a financial crisis is a situation where there is a systemic shortage of liquidity available to domestic firms in the sense that a greater proportion of them end up with lower values of liquidity in the aggregate.

Let N_s denote the proportion of firms acquired by foreigners under G_s, where $s = N, C$ denotes

search frictions might give rise to f as a measure of market tightness determined by the industry distribution of acquiring and target firms. f can also be thought of as the outcome of a social-welfare maximizing regulator subject to lobbying by non-synergistic acquiring firms. Suppose the regulator chooses f to maximize a weighted average of social welfare from firm output and own utility from rents: $\kappa\{fV^F_{jj} + (1-f)V^F_{mj}\} + (1-\kappa)U(\chi(1-f)V^F_{mj})$, where $\kappa \in (0,1)$ is the weight on social welfare, and χ is the fraction of the surplus from non-synergistic acquisitions extracted by the regulator as rent. The optimal f is given by the condition $U'(\chi(1-f)V^F_{mj}) = \frac{\kappa(V^F_{jj} - V^F_{mj})}{(1-\kappa)\chi V^F_{mj}}$, is increasing in χ and V^F_{mj}, and decreasing in $(V^F_{jj} - V^F_{mj})$ and κ under reasonable assumptions.

[22] In the context of our earlier discussion about the alternative assumption $I_j \leq \bar{D}_j(\alpha)$, note that this would not change the preceding analysis. Clearly, the derived surplus lines (call this the baseline case) are valid when the constraint does not bind, since that is equivalent to our assumption that the optimal investment can be financed for any α. In the case where $I_j = \bar{D}_j(\alpha)$, an increment in the target's productivity increases the foreign value by less than in the baseline case since the globally optimal investment is not implemented. Thus to keep the surplus at 0, the domestic value has to rise by less in order to match the foreign value. In other words, the zero surplus lines are steeper and the zones of foreign acquisitions are smaller. The liquidity cut-offs $\bar{l}_{mj}$ and $\bar{l}_{jj}$ would thus both lie more towards the left.

[23] In all the proofs that follow, we assume that $G_N(\underline{l}) = G_C(\underline{l}) = 0$ and $G_N(\bar{l}) = G_C(\bar{l}) = 1$.

[24] The random variable x first-order stochastically dominates (f.o.s.d.) the random variable x' if $B(a) \leq C(a)\ \forall\ a$, where $B(x)$ and $C(x')$ are the cumulative distribution functions of x and x' respectively.

states of the economy (Normal or Crisis).[25] That is

$$N_s = \int \int_{l \in \Lambda_s} dG_s(l)\ dH(\vec{\theta}) \tag{3.7}$$

where H is the distribution of $\vec{\theta} \equiv (A_{ij,2}, \gamma, \theta_{ij,m})$ and Λ_s is the set of liquidity values for which foreign acquisitions are feasible and optimal.[26] We can think of N_N as the "business as usual" mass of foreign acquisitions which will form the baseline for our comparisons.

Proposition 1 ***Increase in foreign acquisitions during crises***
If G_N f.o.s.d. G_C, then $N_C \geq N_N$.

During financial crises, the share of liquidity constrained firms in emerging markets increases, and the share of foreign acquisitions in total (domestic and foreign) acquisitions rises.

Proof: See Technical Appendix.

During financial crises, more domestic firms in emerging markets are liquidity constrained and cannot undertake investments that would be optimal in normal times. The existence of sharper liquidity constraints increases the likelihood of a foreign acquisition. This result is identical to Proposition 1 in Aguiar and Gopinath (2005) but is repeated here for the sake of expositional continuity. Going beyond the current theoretical literature on fire-sale FDI exemplified by Acharya et al. (2011) and Aguiar and Gopinath (2005), we now decompose the share of foreign acquisitions, N_s in Proposition 1, into synergistic and non-synergistic foreign acquisitions. The motivation is to derive testable implications about the industry composition of foreign acquisitions in and out of crises.

Accordingly, let $N_{s,jj}$ denote the fraction of synergistic acquisitions under G_s, $s = N, C$, and $N_{s,mj}$ denote the equivalent fraction of non-synergistic acquisitions. Using the allocation rule defined earlier, we define $N_{s,jj}$ and $N_{s,mj}$ as follows:

$$\begin{aligned} N_{s,jj} &= \int \int_{l \in \Lambda_{jj} \bigcap \Lambda_{mj}} f dG_s(l)\ dH(\vec{\theta}) + \int \int_{l \in \Lambda_{jj} \setminus \Lambda_{mj}} dG_s(l)\ dH(\vec{\theta}) \\ N_{s,mj} &= \int \int_{l \in \Lambda_{jj} \bigcap \Lambda_{mj}} (1-f) dG_s(l)\ dH(\vec{\theta}), \end{aligned} \tag{3.8}$$

where H is the distribution of $\vec{\theta} \equiv (A_{ij,2}, \gamma, \theta_{ij,m})$.

[25] In terms of the model, the phrase proportion of firms refers to the proportion of the total number of firms in the economy. However, we interpret this as the proportion of the total number of acquisitions in the economy in our empirical implementation since our data only cover the universe of M&A transactions, not the total number of firms (see also Aguiar and Gopinath, 2005).

[26] Λ_s is defined as follows: $\Lambda_{mj} \equiv \{l \mid S_{mj} \geq 0\}$, $\Lambda_{jj} \equiv \{l \mid S_{jj} \geq 0\}$, and $\Lambda_s \equiv \Lambda_{mj} \bigcup \Lambda_{jj}$, where l is liquidity.

The proportion of non-synergistic acquisitions in total acquisitions, $N_{s,mj}$, cannot decrease during a crisis because the assumption of f.o.s.d. ensures there is always a (weak) increase in the mass of target firms in the lowest range of the liquidity distribution. To what extent the proportion of synergistic acquisitions, $N_{s,jj}$, changes during a crisis depends on two factors: the pre- and post-crisis distributions of liquidity, and the fraction f. To see why, recall that synergistic acquisitions take place in two parts of the liquidity distribution: all of the middle range, $\bar{l}_{mj}$ to $\bar{l}_{jj}$, and a fraction f of the lower range, $\underline{l}$ to $\bar{l}_{mj}$. If the liquidity distribution during a crisis shifts such that it leaves very few target firms in the middle range of the distribution, there is a decline in synergistic acquisitions in the range $\bar{l}_{mj}$ to $\bar{l}_{jj}$, which, if it is sufficiently large, lowers the proportion of synergistic acquisitions. On the other hand, the advantage that synergistic acquirers have over non-synergistic ones, captured by the fraction f, also matters. A higher f means that synergistic acquirers can acquire a lot of firms in the lower part of the liquidity distribution, even if they lose out on acquiring firms in the middle range of liquidity.[27]

The absolute changes in $N_{s,jj}$ and $N_{s,mj}$ are not completely informative about how the ratio $\frac{N_{s,jj}}{N_{s,mj}}$ changes between normal and crisis periods. This ratio is interesting because it tracks the behavior of synergistic and non-synergistic acquisitions *as a share of foreign acquisitions*. For example, a decline in $\frac{N_{s,jj}}{N_{s,mj}}$ during the crisis period would mean that the proportion of synergistic acquisitions as a share of foreign acquisitions declined, which intuitively corresponds to a decline in the share of matches motivated primarily by operational synergies. However, we need to impose more structure on the distribution of liquidity in order to derive testable hypotheses regarding the change in this ratio. We assume that liquidity across domestic target firms follows a Pareto distribution, which is widely used in theoretical and empirical work in international economics to characterize firm level variables such as productivity and profits (Ghironi and Melitz, 2005; Chaney, 2008; Helpman et al., 2008; Arkolakis et al., 2012). Since firm liquidity in our model derives from first period profits, the Pareto distribution is a natural candidate. Thus, for the remainder of the analysis we rely on the distribution of firm level liquidity being Pareto, with

$$G_s(l) = 1 - \left(\frac{\underline{l}}{l}\right)^{p_s}. \tag{3.9}$$

The shape parameter p_s, $s = N, C$, characterizes crisis versus normal times with $p_C \geq p_N$.

To find the proportion of synergistic and non-synergistic acquisitions as a share of foreign acquisitions only, let $G'_N \equiv G_N(l \mid l \in \Lambda_s)$ and $G'_C \equiv G_C(l \mid l \in \Lambda_s)$ denote the normal-period and crisis-period cumulative distributions of liquidity *conditional on being acquired by a foreign*

[27] Specifically, it can be shown that if $\frac{G_C(\bar{l}_{jj})-G_N(\bar{l}_{jj})}{G_C(\bar{l}_{mj})-G_N(\bar{l}_{mj})} \geq 1-f \ \ \forall\vec{\theta}$, then $N_{C,jj} \geq N_{N,jj}$. The ratio $\frac{G_C(\bar{l}_{jj})-G_N(\bar{l}_{jj})}{G_C(\bar{l}_{mj})-G_N(\bar{l}_{mj})}$ reflects the relative changes in the proportion of firms that remain in the middle range of liquidity versus the lower range. The larger this number, the more likely it is for synergistic acquisitions to increase. It can also be shown that the increase in the proportion of synergistic acquisitions can exceed that of non-synergistic acquisitions if $\frac{G_C(\bar{l}_{jj})-G_N(\bar{l}_{jj})}{G_C(\bar{l}_{mj})-G_N(\bar{l}_{mj})} \geq 2(1-f) \ \ \forall\vec{\theta}$. Both these conditions can be satisfied for high f.

firm. In terms of our liquidity cut-offs, G'_N and G'_C are the cumulative distributions G_N and G_C *truncated* at $\bar{l}_{jj}$. Also let $N^F_{C,mj}$ ($N^F_{C,jj}$) and $N^F_{N,mj}$ ($N^F_{N,jj}$) denote the corresponding proportions of non-synergistic (synergistic) acquisitions, which are defined as in equations 3.8, only with G'_s replacing G_s.

$$\begin{aligned} N^F_{s,jj} &= \int\int_{l\in\Lambda_{jj}\bigcap\Lambda_{mj}} f dG'_s(l)\ dH(\vec{\theta}) + \int\int_{l\in\Lambda_{jj}\setminus\Lambda_{mj}} dG'_s(l)\ dH(\vec{\theta}) \\ N^F_{s,mj} &= \int\int_{l\in\Lambda_{jj}\bigcap\Lambda_{mj}} (1-f) dG'_s(l)\ dH(\vec{\theta}), \end{aligned} \tag{3.10}$$

Mathematically, G_N f.o.s.d. G_C, does not guarantee G'_N f.o.s.d. G'_C. However, this property holds for the Pareto distribution, i.e., for

$$G'_s(l) = \frac{1-\left(\frac{l}{\bar{l}}\right)^{p_s}}{1-\left(\frac{l}{\bar{l}_{jj}}\right)^{p_s}}, \tag{3.11}$$

it is the case that $\frac{dG'_s}{dp_s} > 0$. This is a convenient property for our purposes since G'_N f.o.s.d. G'_C turns out to be a sufficient condition for the ratio $\frac{N_{s,jj}}{N_{s,mj}}$, and hence for $N^F_{s,jj}$ to decline during crisis periods.

Proposition 2 ***Increase in foreign non-synergistic acquisitions as a share of all foreign acquisitions during crises***
If G_N, G_C are Pareto and G_N f.o.s.d. G_C, then $N^F_{C,mj} \geq N^F_{N,mj}$ and $N^F_{C,jj} \leq N^F_{N,jj}$.

The share of non-synergistic acquisitions in foreign acquisitions (weakly) increases during a crisis while the proportion of synergistic acquisitions (weakly) declines. Under our distributional assumptions on liquidity, the composition of foreign acquisitions thus shifts away from matches based on operational synergies.

Proof: See Technical Appendix.

The intuition for this result is simple. A stochastically dominated shift of a Pareto distribution of liquidity must involve a (weak) increase in the proportion of firms falling in the lowest range $[\underline{l}, \bar{l}_{mj}]$. Foreign non-synergistic acquisitions involve a fixed fraction $1-f$ of these firms as targets, and hence their share in foreign acquisitions must (weakly) increase. Since we are looking at only two categories of acquisitions – foreign synergistic and foreign non-synergistic – an increase of the proportion of one necessarily implies a decline in the other. Thus synergistic acquisitions as a proportion of foreign acquisitions (as opposed to total acquisitions, which includes a third category, firms that remain under domestic control) must fall under crisis conditions.

Proposition 2 provides sufficient conditions for the ratio $\frac{N_{s,jj}}{N_{s,mj}}$, and hence for $N^F_{s,jj}$ to decline

during crisis periods. Economically speaking, these are conditions under which we should see a shift in the composition of foreign acquisitions towards matches that are based more on temporary value creation through relaxation of credit constraints of targets, rather than longer term value creation based on operational synergies. The empirical evidence on Proposition 2 should thus be interpreted as a test of whether this shift in composition occurs, and in which direction.

3.3 The Average Size of Acquisitions

We now analyze the average level of ownership acquired by foreign firms during normal and crisis times. Taking the derivative of the foreign firm's objective function in equation 3.2, the optimal degree of ownership α^* equates the marginal value of cash flow rights with its marginal cost:

$$\pi(\alpha^*) + \alpha^* \phi'_{mj}(\alpha^*) A_{j,2} F(K^*_{j,2}) = c'(\alpha^*) \tag{3.12}$$

where $K^*_{j,2}$ is the optimal unconstrained period 2 capital stock and $\pi(\alpha^*)$ is defined as $\pi(\alpha^*) \equiv \pi_{j,1} - I^*_j + (1-\delta)K^*_{j,2} + \phi_{mj}(\alpha^*)A_{j,2}F(K^*_{j,2})$.[28] At the margin, additional ownership has two benefits for the foreign owner. She gets $\pi(\alpha^*)$ in direct profits. She also improves the value of the firm by the amount $\Delta \equiv \phi'_{mj}(\alpha^*)A_{j,2}F(K^*_{j,2})$ by increasing its productivity and thus gets a benefit $\alpha^*\Delta$ proportional to her existing ownership α^*.

There are three implications of equation 3.12. First, more ownership is acquired in more productive targets: A target with higher productivity provides a foreign acquirer with a higher benefit from the marginal share of ownership. A higher $A_{j,2}$ increases the left-hand side of equation 3.12 leaving the right-hand side unchanged. Thus optimality requires that the foreign firm equate the higher marginal benefit to higher marginal costs by increasing ownership. Second, it is also clear that $\alpha^*_{jj}(\vec{\theta}) > \alpha^*_{mj}(\vec{\theta})$: When $m = j$, the left-hand side of equation 3.12 is higher for any given α, and an increase in α restores the equality. Thus the model predicts that synergistic acquisitions involve larger ownership stakes than non-synergistic acquisitions. Finally, α^* is not a function of l. Thus a shift in the distribution of liquidity does not influence the average level of ownership by synergistic or non-synergistic acquiring firms in this model. Thus any changes during a crisis in the average amount of foreign ownership acquired must be due to the compositional changes depicted in Proposition 2.

Let G'_N and G'_C denote the normal-period and crisis-period conditional cumulative distributions of liquidity defined in the previous section.[29] Let α_s denote the average share acquired by foreigners under G'_s, where $s = N, C$. These are defined as the weighted average of the ownership obtained by synergistic and non-synergistic foreign acquirers, with the weights being their respective shares

[28] The stated condition is for an interior solution for α^*. Though we write $\phi'_{mj}(\alpha)$ and $c'(\alpha)$ as functions of α, either (but not both) of these may be constants. As discussed earlier, we need curvature in either $c(\alpha)$ or $\phi_{mj}(\alpha)$ to have the possibility of interior solutions for α.

[29] We use the conditional distribution in this case because we are interested in the average share of the firm purchased conditional on it being acquired by a foreign firm.

in foreign acquisitions:

$$\alpha_s = \int \underbrace{\Big[\int_{l \in \Lambda_{jj} \bigcap \Lambda_{mj}} f dG'_s(l) + \int_{l \in \Lambda_{jj} \setminus \Lambda_{mj}} dG'_s(l) \Big]}_{\text{share of synergistic acquisitions}} \alpha^*_{jj}(\vec{\theta})\, dH(\vec{\theta}) + \int \underbrace{\int_{l \in \Lambda_{jj} \bigcap \Lambda_{mj}} (1-f) dG'_s(l)}_{\text{share of non-synergistic acquisitions}} \alpha^*_{mj}(\vec{\theta})\, dH(\vec{\theta}) \tag{3.13}$$

Then the invariance of the optimal shares acquired in each category of acquisition, $\alpha^*_{jj}(\vec{\theta})$ and $\alpha^*_{mj}(\vec{\theta})$, together with Proposition 2 on the industry composition of acquisitions leads to the following proposition.

Proposition 3 ***Decrease in foreign ownership stake during crises***
(i) If $\alpha^*(\vec{\theta})$ is interior, $\alpha^*_{jj}(\vec{\theta}) > \alpha^*_{mj}(\vec{\theta})$ and $\alpha^*_{mj}(\vec{\theta})$ and $\alpha^*_{mj}(\vec{\theta})$ are invariant to crisis status; (ii) in addition, if G_N, G_C are Pareto and G_N f.o.s.d. G_C, then $\alpha_C \leq \alpha_N$.

The average foreign ownership stake in the domestic target is smaller in crisis periods relative to non-crisis periods due to the composition of foreign acquisitions shifting towards non-synergistic acquisitions.

Proof: See Technical Appendix.

The ownership acquired by foreign firms overall is a weighted average of the ownership acquired by foreign synergistic and non-synergistic acquirers, the weights being given by their respective proportions in the total number of foreign acquisitions taking place. We know from Proposition 2 that the proportion of foreign non-synergistic acquisitions increases during a crisis, which implies that the weight on the smaller non-synergistic ownership shares α^*_{mj} rises and the weight on the larger synergistic ownership shares α^*_{jj} falls. Thus the average stake acquired decreases when the liquidity distribution shifts to the left, due to a change in composition of acquirers. We label this the "composition margin". The "ownership margin" (i.e., the amounts of ownership α^*_{jj} and α^*_{mj}), since it depends on factors assumed to be orthogonal to liquidity, remains unchanged with shifts in domestic liquidity during a crisis.[30]

3.4 The Possible Resale of Acquisitions

We now derive some implications of our model for the pattern of divestitures of foreign acquisitions made during crisis versus normal periods. So far we have assumed that the capital stock of the acquired firm is liquidated at the end of the second period and the proceeds are distributed in

[30]The orthogonality assumption simplifies our proofs. We present regression evidence later that the shares α^*_{jj} and α^*_{mj} do not change significantly during crisis periods.

proportion to ownership shares. Suppose instead there is an additional period, period 3. In period 2, after revenues for that period have been realized, but before the investment decision for period 3 has been made, the foreign firm receives an all-or-nothing offer V^* for her entire share α of the firm. We conduct the analysis under the assumption that the firm making the offer is domestic.[31]

We make a number of other assumptions to simplify the analysis. The assumptions are that: (i) the acquirer making the buy-back offer is not liquidity-constrained in period 3; (ii) the sale in period 3 involves no transaction costs for either party; (iii) if the foreign firm chooses to sell its ownership, it can extract all the surplus from the new buyer; (iv) productivity is the same across periods 2 and 3, i.e., $A_{j,2} = A_{j,3} = A_j$; and (v) the depreciation rate δ is 1 so that $K_{j,2} = I_{j,1}$ and $K_{j,3} = I_{j,2}$. Assumption (i) is motivated by the absence of liquidity constraints among domestic firms once the crisis is over. Assumption (ii) captures the lower acquisition costs faced by domestic firms due to their knowledge of local market conditions. Assumptions (iii)-(v) are introduced only to simplify the algebra. None of our results depend critically on these assumption.[32]

The analysis proceeds in three steps. We first characterize the offer price V^* that the foreign acquirer receives in period 2; we next analyze the conditions under which a flip occurs; we then characterize which acquisitions made in period 1 would satisfy the conditions for flipping. We suppress the industry subscripts m and j for all variables to keep the notation simple. The outside offer is given by $V^* = \alpha\{AF(K_d^*) - K_d^*\}$, where K_d^* denotes the optimal choice of K_3 by the domestic acquiring firm.[33] Let $\mathbb{I}_f$ be an indicator variable which is 1 when the foreign share is flipped and 0 otherwise. The foreign firm's valuation of the domestic firm with the possibility of resale taken into account is then

$$\begin{aligned} V^F(A, \pi_1) = \max_{K_2,\ K_3,\ \alpha,\ \mathbb{I}_f} \Big\{ & \alpha(\pi_1 - K_2 + \phi AF(K_2)) \\ & + (1 - \mathbb{I}_f)\alpha(\phi AF(K_3) - K_3) + \mathbb{I}_f \alpha(AF(K_d^*) - K_d^*) - \Gamma - c(\alpha) \Big\} \end{aligned} \tag{3.14}$$

[31] Since domestic firms are assumed to have constant marginal returns to ownership, they are willing to buy an ownership stake of any size. In general, the same statement does not apply to a foreign acquirer that has an optimal degree of ownership.

[32] While assumption (i) simplifies the problem because we can assume that the third period domestic buyer is able to invest optimally, it is not essential. An alternative to (i) would be to assume that the domestic acquiring firm is less credit constrained in period 3 than in the other periods, but that would only complicate the problem without adding much insight. Essentially, the domestic buyer would offer a lower price than V^*, which would make the foreign firm less likely to flip. The presence of transaction costs in the third period acquisition (assumption ii) would reduce the surplus accruing to each party, and would make the foreign firm less likely to flip. Regarding assumption (iii), the results will not change substantively if the foreign firm can extract only a fraction of the profits that accrues to the domestic buyer in the third period. Again, it will only lower the surplus the foreign firm can extract from the deal and make it less likely to flip. Equal productivity across periods leads to the optimal capital stock being equalized across periods, which together with full depreciation makes the flipping condition 3.15 analytically simple. Relaxing the last two assumptions only makes the algebra more involved.

[33] V^* maximizes $\alpha\Big\{AF(K_3) - K_3\Big\}$ with respect to K_3, where α is the size of the flipped stake. The first-order condition for investment is $F'(K_3) = \frac{1}{A}$.

subject to

$$0 \leq \alpha \leq 1.$$

The optimality conditions for ownership, α, and capital stocks, K_2 and K_3, are provided in the Technical Appendix. Turning to the flipping decision, a foreign acquisition will be flipped if the profits from flipping exceed the profits from retaining control in period 3. Thus $\mathbb{I}_f = 1$ when

$$\begin{aligned} \alpha_f^*\{\pi_1 + \phi(\alpha_f^*)AF(K_f^*) - K_f^*\} - c(\alpha_f^*) + \alpha_f^*\{AF(K_d^*) - K_d^*\} > \\ \alpha_{nf}^*\{\pi_1 + 2\phi(\alpha_{nf}^*)AF(K_{nf}^*) - 2K_{nf}^*\} - c(\alpha_{nf}^*) \end{aligned} \tag{3.15}$$

where the subscripts nf (no flip) and f (flip) refer to the choices of the subscripted variable corresponding to $\mathbb{I}_f = 0$ and $\mathbb{I}_f = 1$, and the star superscripts denote optimal values of the other choice variables.[34] To evaluate this condition, we need to select functional forms for the production function, the acquisition costs, and the productivity improvement coming from additional foreign ownership. The functional forms and benchmark parameter values are shown in Table 1 in the Technical Appendix.[35]

We focus on the productivity function $\phi(\alpha)$, given by $\phi(\alpha) = \Psi + \alpha^{\psi}$, because it is key to the flipping decision in our model. It can be shown that, ceteris paribus, firms that have Ψ below a cut-off value find it optimal to flip their acquisitions (see the Technical Appendix for details). Intuitively, Ψ captures a notion of the baseline productivity of the match between acquirers and targets because $\phi = \Psi$ for $\alpha = 0$, even though the acquirer may improve the productivity of the match by acquiring more ownership. A foreign acquirer that makes a crisis-time acquisition in which the baseline productivity is below a cut-off finds the offer V^* from a post-crisis liquidity-unconstrained domestic acquirer profitable enough to flip its purchase.

The cut-off value for Ψ, below which acquisitions are flipped, depends on the other parameters chosen but is generally less than 1. Recall that firms under domestic control implicitly have $\phi(\alpha) = 1$. Therefore only foreign acquisitions that have baseline productivity less than unity are flipped. We thus introduce differential efficiency among foreign acquirers, as in Acharya et al. (2011), to allow for flips. We assume that Ψ can take two values – high (H) and low (L) – within each of the groups of synergistic (jj) and non-synergistic acquisitions (mj). The tuples Ψ_{jj}^H, Ψ_{mj}^H and Ψ_{jj}^L, Ψ_{mj}^L are, respectively, chosen to be greater than and less than the cut-off Ψ (below which acquisitions

[34] Due to our earlier assumptions $K_2 = K_3 = K_{nf}^*$ optimally when the firm is not flipped.

[35] Briefly, the calibration choices are as follows. We assume that the production function is Cobb-Douglas with labor normalized to 1 and a capital exponent of 0.33. The acquisition cost function is $c(\alpha) = \Gamma + \alpha^{\gamma}$ with $\Gamma = 1.3$ and $\gamma = 2$. The value of the fixed cost Γ affects the proportion of foreign acquisitions, and is chosen so that the proportion of foreign acquisitions is 31% as in the data. We experiment with a range of values of the curvature parameter $\gamma \in [1, 3]$ but the results are not very sensitive to it as long as it is not too high. The productivity function is $\phi(\alpha) = \Psi + \alpha^{\psi}$ with $\psi = 0.5$. We experiment with $\psi \in [0, 1]$. The results are not very sensitive to ψ as long as it is not too close to 0 or 1. We pick $\psi = 0.5$. Ψ is chosen as described in the text. The productivity of domestic firms, A, is assumed to be distributed uniformly between 1 and 1.5. The model is simulated for a discrete grid of values of A between 1 and 1.5 and each relevant quantity (like the percentage of flips) is summed up over all values of A on the grid. The steps used in the simulation are in the Technical Appendix.

are flipped) for the benchmark values of the other parameters of the model. Thus the type-H firms retain control, while the type-L firms flip their acquisitions. We further assume that these values of fundamental productivity have the ordering $\Psi^H_{jj} > \Psi^H_{mj} > 1 > \Psi^L_{jj} > \Psi^L_{mj}$, to preserve out earlier assumption that synergistic acquisitions are, ceteris paribus, more productive than non-synergistic ones. However, we allow for the possibility that some synergistic acquisitions are less productive than some non-synergistic ones to account for the empirical fact that both synergistic and non-synergistic acquisitions are flipped.

To find which crisis-time acquisitions are flipped, we now analyze the conditions under which a domestic firm is acquired by a foreign firm in the three-period case. To do so, we first define the value of the target firm under domestic control for all three periods, V^D_j, as

$$V^D_j(A_j, \pi_{j,1}, \bar{D}) = \max_{K_{j,2}, K_{j,3}} \{\pi_{j,1} - K_{j,2} + A_j F(K_{j,2}) - K_{j,3} + A_j F(K_{j,3})\} \tag{3.16}$$

subject to

$$I_{j,1} \leq \bar{D} + \pi_{j,1} \equiv l_j.$$

The simplifying assumption here is that the domestic firm is only liquidity constrained in period 1.[36] As in the two-period model, $V^D_j(A_j, \pi_{j,1}, \bar{D})$ is an increasing function of period 1 firm liquidity.[37]

As before, using V^D_j we can define the surpluses associated with each type of acquisition – $S_{jj,H}$, $S_{mj,H}$, $S_{jj,L}$, and $S_{mj,L}$ – and the corresponding zero-surplus lines. Figure 4 below is the counterpart of Figure 3 earlier and shows the equivalent liquidity cut-offs for these four different categories of foreign acquisitions. It is derived using the same steps that were used for Figure 3. The details are in the Technical Appendix.

It is clear from Figure 4 that value-destroying acquisitions may occur in this environment if there is a positive mass of firms in the range $l \in [\underline{l}, \bar{l}_{jj,L}]$, which is the range where acquisitions of type L occur. Since domestic firms are liquidity constrained in the crisis period, it is possible that a foreign firm that makes less productive use of the domestic target's assets, i.e., $\psi_0 < 1$, is able to acquire it if the acquisition costs are low enough.[38]

In order to make predictions about flipping rates of crisis-time acquisitions, we need to find the number of acquisitions made by each type of acquiring firm during the crisis. Since $S_{jj,H} \geq 0$ if $l \in (\bar{l}_{mj,H}, \bar{l}_{jj,H}]$, only the type "$jj, H$" (synergistic firms that retain control) can make acquisitions in this range. For all the other intervals of liquidity we need to make assumptions about how the target firms are allocated to acquirers. As before, we assume that in the ranges of liquidity where more than one type of firm find it feasible to acquire, targets are matched randomly to

[36] The first-order condition for $K_{j,2}$ is $F'(K_{j,2}) = \frac{1+\lambda}{A}$ where λ is the Lagrange multiplier associated with the period 1 liquidity constraint; for $K_{j,3}$ it is $F'(K_{j,3}) = \frac{1}{A}$.

[37] Under our simplifying assumptions, $V^D_j(l_j, .)|_{3-\text{period}} = V^D_j(l_j, .)|_{2-\text{period}} + \frac{V^*}{\alpha}$.

[38] This would not happen if the market for corporate control were perfectly competitive, in which case a foreign acquirer with higher ψ_0 would be able to outbid the one with lower ψ_0. However, as noted before, an efficient allocation of this sort may not materialize since there are numerous frictions in these markets.

acquirers. The probability of a target's being matched with a type H (L) firm is Π (1-Π). We retain the assumption that the probability of being matched with a type-jj firm is $f > \frac{1}{2}$, since our ordering of baseline productivity implies that same-industry matches have higher efficiency within each of the H and L categories. As before, the implicit assumption in the way we match targets to acquirers is that there are frictions in the market for corporate control that prevent the allocation of resources to the most productive foreign owners.

The proportions of target firms acquired by the four types of acquiring firms in each range of liquidity under the two different scenarios of aggregate liquidity $s = N, C$, denoted by $N_{s,jj,H}$, $N_{s,mj,H}$, $N_{s,jj,L}$ and $N_{s,mj,L}$, are given in the Technical Appendix.[39] Using these proportions, we define the flipping rate associated with acquisitions (foreign, foreign synergistic, or foreign non-synergistic) made during a certain state of nature $s = N, C$ as the fractions of the total number of acquisitions of each type occurring in that state that are flipped. These are respectively $\frac{N_{s,jj,L}+N_{s,mj,L}}{N_{s,jj,H}+N_{s,mj,H}+N_{s,jj,L}+N_{s,mj,L}}$, $\frac{N_{s,jj,L}}{N_{s,jj,H}+N_{s,jj,L}}$, and $\frac{N_{s,mj,L}}{N_{s,mj,H}+N_{s,mj,L}}$. Numerical simulations of the model yield the following result about the flipping rates of foreign acquisitions.

Proposition 4 ***Higher flipping rate for crisis acquisitions***
(i) $\frac{N_{C,jj,L}+N_{C,mj,L}}{N_{C,jj,H}+N_{C,mj,H}+N_{C,jj,L}+N_{C,mj,L}} \geq \frac{N_{N,jj,L}+N_{N,mj,L}}{N_{N,jj,H}+N_{N,mj,H}+N_{s,jj,L}+N_{N,mj,L}}$.
(ii) $\frac{N_{C,jj,L}}{N_{C,jj,H}+N_{C,jj,L}} \geq \frac{N_{N,jj,L}}{N_{N,jj,H}+N_{N,jj,L}}$.
(iii) $\frac{N_{C,mj,L}}{N_{C,mj,H}+N_{C,mj,L}} \geq \frac{N_{N,mj,L}}{N_{N,mj,H}+N_{N,mj,L}}$.

The crisis cohort of foreign synergistic and non-synergistic acquisitions, and foreign acquisitions overall, have higher flipping rates.

Proof: See Technical Appendix.

During crises more target firms pass into the hands of foreign owners who have a productivity disadvantage compared to domestic owners. They find it feasible and profitable to acquire these firms due to the lack of liquidity of the targets, which depresses their valuation under domestic ownership. Thus the average productivity of matches during crises is lower due to a shift in composition towards matches characterized by lower operational synergies. This happens within both categories of foreign acquisitions, synergistic and non-synergistic. When normal times return and domestic owners have adequate liquidity, they buy back assets from the least-productive foreign owners in each category. Thus the flipping rates for the crisis cohorts of foreign synergistic and non-synergistic acquisitions are higher. As a result, foreign acquisitions overall have higher flipping rates if conducted during financial crises.

[39] For example, consider type L non-synergistic acquirers who can only acquire in the range of liquidity $l \in [\underline{l}, \bar{l}_{mj,L}]$. The mass of firms going to them in normal and crisis times are respectively $(1-f)(1-\Pi)G_N(\bar{l}_{mj,L})$ and $(1-f)(1-\Pi)G_C(\bar{l}_{mj,L})$, conditional on $\vec{\theta}$.

3.4.1 Propositions 1-3 in the Three-Period Model

Since the results on the resale of assets are derived under small modifications to the benchmark two-period model, it is important to verify that Propositions 1-3 go through for the three-period case. It is straightforward to verify these with the same simulation method used for Proposition 4. We simply calculate the following quantities about which Propositions 1-3 made predictions. For Proposition 1-3, we calculate for $s = N, C$, (i) the proportion of foreign acquisitions as $N_s = N_{s,jj,H} + N_{s,mj,H} + N_{s,jj,L} + N_{s,mj,L}$; (ii) the proportion of non-synergistic and synergistic acquisitions in foreign acquisitions as $N^F_{s,mj} = \frac{N_{s,mj,H}+N_{s,mj,L}}{N_{s,jj,H}+N_{s,mj,H}+N_{s,jj,L}+N_{s,mj,L}}$ and $N^F_{s,jj} = \frac{N_{s,jj,H}+N_{s,jj,L}}{N_{s,jj,H}+N_{s,mj,H}+N_{s,jj,L}+N_{s,mj,L}}$; and (iii) the average ownership acquired by foreign firms as $\alpha_s = \frac{N_{s,jj,H}\alpha_{jj,H}+N_{s,mj,H}\alpha_{mj,H}+N_{s,jj,L}\alpha_{jj,L}+N_{s,mj,L}\alpha_{mj,L}}{N_{s,jj,H}+N_{s,mj,H}+N_{s,jj,L}+N_{s,mj,L}}$, where $\alpha_{jj,H}$, $\alpha_{mj,H}$, $\alpha_{jj,L}$, and $\alpha_{mj,L}$ are the ownerships acquired by each category of foreign acquirer. We use a Pareto distribution for liquidity and vary the shape parameter to simulate the normal and crisis period distributions of liquidity. These simulations use the same functional forms and parameter values for the other parts of the model (such as the production function, cost of acquisition etc.), noted and justified earlier in this section, and used for Proposition 4. The precise steps used to implement the simulation are documented in the Technical Appendix.[40] These simulations confirm that Propositions 1-3 go through in the three-period case.

4 Empirical Results

We next test the model's predictions regarding the effects of financial crises in emerging markets on the characteristics of foreign acquisitions – their industry composition, size and duration – that were studied in Propositions 1-4. Central to this exercise is a comparison of transactions undertaken during crisis periods with those undertaken during non-crisis periods. It is therefore important that the beginning and the end dates of each crisis are measured as accurately as possible. In the benchmark results, we use the annual crisis dates identified in Laeven and Valencia (2010) for systemic banking crises.[41] About 12% of the transactions in the sample occur during banking

[40] The Matlab files used for the simulations are available from the corresponding author on request.

[41] Laeven and Valencia (2010) define a banking crisis as systemic if two conditions are met: (1) there are clear signs of financial distress in the banking system as indicated by significant bank runs, losses in the banking system and bank liquidations; and (2) significant banking policy intervention measures were implemented in response to large losses in the banking system. Policy measures are defined to be significant if at least three of the following conditions are met: (1) extensive liquidity support is provided (5% of deposits and liabilities to non-residents); (2) bank restructuring costs exceed 3% of GDP; (3) systemically important banks are nationalized; (4) guarantees of bank liabilities are put into place; (5) asset purchases from financial institutions exceed 5% of GDP; and (6) deposit freezes and bank holidays are introduced. In their definition of currency crises, Laeven and Valencia (2008) build on the approach of Frankel and Rose (1996). They define a currency crisis as a nominal depreciation of the currency of at least 30% that is also at least a 10 percentage point increase in the rate of depreciation compared to the year before. They use the per cent change of the end-of-period nominal bilateral exchange rate from the *World Economic Outlook* database of the IMF to identify currency crises. For countries that meet the criteria for several continuous years, they use the first year of each 5-year window to identify the crisis. The set of episodes identified by these

crises, while about 3.3% and 2.5% occur during currency and twin crises. Tests of the statistical significance of crisis effects that rely only on currency or twin crises thus have less power than those based on banking crises. For this reason, we use Laeven and Valencia banking crisis data in the benchmark regressions. We show later that the main conclusions of the empirical exercise are insensitive to the use of alternative crisis dummy variables.

A number of other controls are included in the regressions. In addition to country- and industry-level fixed effects, we also include a set of lagged macroeconomic variables: the change in the nominal exchange rate (quarterly), the use of IMF credit and loans as a percentage of a country's quota (quarterly), real GDP per capita (annual), and real GDP growth (annual).[42] These data are from the Penn World Tables, the IMF's *International Financial Statistics*, Taiwan's National Statistical Office, and the Central Bank of the Republic of China. The macroeconomic covariates are intended to account for cyclical macroeconomic conditions beyond the extraordinary circumstances of financial stress that characterize banking or currency crises (see also Brown and Dinc, 2011). Summary statistics for the macroeconomic controls are provided in Table 7.[43]

We define a synergistic acquisitions as one that occurs between two firms in the same one-digit SIC industry.[44] As Table 4 shows, most foreign acquisitions occur between firms in the same industry, which suggests the existence of benefits inherent to this type of acquisitions. There is also a large literature in finance that identifies diversification discounts for firms that operate beyond their core industry of expertise (Wernerfelt and Montgomery, 1988; Lang and Stulz, 1994), which could be due to the presence of industry-specific assets as in Williamson (1988) and Shleifer and Vishny (1992). That firms in the same industry are better able to manage acquired assets is also borne out by empirical evidence on asset prices (see Pulvino, 1998; Strömberg, 2000; Almeida et al., 2011, among others). In any case, three of the four propositions that we test (Propositions 1, 3 and 4) do not require taking a stand on the precise empirical counterpart of a synergistic acquisition.

Other research on fire-sale FDI such as Aguiar and Gopinath (2005) and Acharya et al. (2011) focused on the Asian financial crisis. In the tests of each proposition, we thus report results for the full sample, as well as for the Asian and non-Asian subsamples separately. Because the crisis in Asia led to financial sector reforms and other policy changes in a number of countries (see UNCTAD, 1998; Berg, 1999), we report results for the post-1997 Asian sample as well.

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criteria also includes large devaluations by countries that had adopted fixed exchange rate regimes.

[42] We exclude the real interest rate because of data availability. Annual and quarterly real interest rate data are unavailable for several countries in the early years of the sample period. In particular, the quarterly data series for real interest rates have missing values for the following countries and years: Argentina until 1993Q1, Brazil until 1997Q4, Mexico until 1993Q3, and Vietnam until 1995Q4.

[43] In an earlier version of this paper we used the fraction of the firm owned after the acquisition is completed as a control variable to account for the effect of prior foreign ownership. All our results are very similar using this alternative specification. We exclude this variable as a control due to endogeneity concerns: The foreign acquisition decision also involves a decision about the size of the acquisition.

[44] Others such as Lang and Stulz (1994) Officer (2007) have used SIC codes to classify different types of a firm's operations or acquisitions.

4.1 The Composition of Foreign Acquisitions During Crises

We use a linear probability model to test Propositions 1 and 2, which summarize the model's predictions about the change in the quantity and industry composition of foreign acquisitions during crises.[45] The regression model is

$$P(D_l^{kjct} = 1 \mid \cdot) = \beta_{jc}\boldsymbol{\delta}_{jc} + \beta_C D_{ct} + \boldsymbol{controls}'_{c,t-4}\beta_{mc} + \epsilon_{kjct}, \tag{4.1}$$

where k, j, c, and t stand for transaction, single-digit SIC industry of the target firm, country, and time. The dependent variable is a dummy D_l^{kjct} that assumes a value of 1 if the transaction belongs to category l and 0 otherwise. The categories are explicitly defined in the discussions of each set of regression results. In addition to the dummy variable D_{ct} that indicates whether an acquisition took place during a crisis period, the set of explanatory variables includes a vector of either country×target-industry dummies $\boldsymbol{\delta}_{jc}$ or country dummies $\boldsymbol{\delta}_c$, and the vector of lagged country-level macroeconomic controls $\boldsymbol{controls}_{c,t-4}$.[46] The standard errors are clustered two-way at the level of country×target-industry and, in the time dimension, by month.[47]

4.1.1 Test of Proposition 1: Is the Probability of Foreign Acquisitions Higher During Crises?

We test the hypothesis suggested by Proposition 1 that the likelihood of foreign acquisitions is higher during a crisis. Accordingly, we expect the estimated coefficients associated with the crisis dummy, $\hat{\beta}_C$, to be positive. The results are reported in Table 8 and are based on regressions that include all foreign and domestic acquisitions in the sample. The estimated coefficients of the macroeconomic control variables are omitted to conserve space.[48] The dependent variable in the

[45] We use a linear probability model as the benchmark instead of a non-linear model such as logit or probit. The identification of the crisis effect requires country×target-industry fixed effects. If foreign acquirers are always more active in certain countries and a crisis occurs in those countries, the estimated coefficient on the country-level crisis dummy will ascribe part of the country effect to the crisis in the absence of country×target-industry fixed effects. Probit suffers from the incidental parameters problem when using maximum likelihood estimation, so the parameters of the model with fixed effects cannot be consistently estimated with dummy variables. While logit is unaffected by this issue, the large number of fixed effects causes problems with computational convergence in some of our empirical specifications. We also lose some information because any country×target-industry pair that exhibits no variation in the left-hand-side variable is automatically dropped. The linear probability model is able to handle the complications introduced by the panel nature of the data set and is easily interpretable. Also, 99.9% of our predicted LPM probabilities lie between 0 and 1 (see Horrace and Oaxaca, 2006).

[46] In the regressions that test whether the probability of a foreign non-synergistic financial acquisition differs between crisis and non-crisis periods, the country×target-industry fixed effects completely explain the variation in the dependent variable because there is no variation across types of acquiring firms. Thus, it is necessary to estimate the model with country fixed effects only.

[47] This procedure adjusts for correlation of errors within the same country×target-industry and among firms within the same month. See Petersen (2009).

[48] Because the model does not provide clear guidance about the interpretation of the estimated coefficients associated with the macroeconomic covariates, we use the evidence reported in Erel et al. (2012) to interpret them. They find that a foreign acquisition is more likely when: (1) the exchange-rate valuation is higher in the acquirer country relative to that of the target's country; (2) the acquirer's country has a higher per capita GDP than the target's country;

first set of estimates is a dummy variable that takes a value of 1 if the transaction involved a foreign acquirer and 0 otherwise.

The probability of a foreign acquisition is positively related to the incidence of a banking crisis, as Proposition 1 of the model predicts. The estimated effects range between 0.06 and 0.12, depending on the subsample, and all of the estimates are statistically significant at conventional levels. The estimates are economically significant as well. For example, the coefficient estimate associated with the crisis dummy for the model estimated using the full sample of countries implies that a crisis is associated with about a 30% increase in the probability of a foreign acquisition.[49] This evidence is consistent with our model of fire-sale FDI as well as those of Aguiar and Gopinath (2005) and Acharya et al. (2011).

The second set of estimates shows whether there is an increase in foreign financial acquisitions of all targets. The dependent variable is a dummy variable that takes a value of 1 if the transaction involved a foreign financial acquirer and 0 otherwise. Although the test does not strictly follow from the model, it is motivated by the evidence that foreign acquirers in the financial sector are disproportionately represented in the market for corporate control. The idea that foreign financial firms played an important role in this market is also implicit in other models of fire-sale FDI (e.g., Krugman, 2000; Acharya et al., 2011).

There is evidence for this claim in each of the subsamples. The incidence of a crisis is positively associated with the probability of a foreign financial acquisition, and the estimate is both economically and statistically significant. For example, the estimated coefficient $\hat{\beta}_C$ for the full sample of countries is 0.03 and implies a 35% increase in the probability of a foreign financial acquisition during a crisis.[50] The increase in the probability is somewhat larger than, but comparable to, the 30% increase in the incidence of foreign acquisitions during crises.

Foreign acquisitions can be classified as either synergistic or non-synergistic based on whether they are in the same one-digit SIC industry. Following the treatment of these different types of foreign acquisitions in the model, we decompose the change in the probability of foreign acquisitions during crises into the change in the probability of synergistic and non-synergistic foreign acquisitions in Table 9. We run a regression identical to regression 4.1 in all respects except that the left hand side dummy variable D_l^{kjct} takes a value of 1 if the acquisition is foreign synergistic and 0 otherwise in Panel A of Table 9. Panel B has $D_l^{kjct} = 1$ if the acquisition in foreign non-synergistic and 0

and (3) the acquirer's country exhibits greater GDP growth relative to that of the targets country. The results reported in Appendix Table A15 exhibit some consistency with those reported by Erel et al. (2012). The main point of similarity is that the probability of a foreign acquisition is smaller the richer is the target's country. Furthermore, the probability of a foreign acquisition is positively correlated with the size of the lagged IMF loan-GDP ratio in the full sample of countries, which is consistent with the ability of foreign acquirers to provide liquidity during periods of financial stress.

[49]The coefficient estimate is 0.09, and the unconditional probability that a given transaction during a non-crisis period involved a foreign acquirer is 0.298.

[50]The unconditional probability that a given transaction during a non-crisis period involved a foreign financial acquirer is 0.086.

otherwise. These categories are the empirical counterparts of the objects $N_{s,jj}$ and $N_{s,mj}$. The estimated coefficients associated with the crisis dummy in Panels A and B of Table 9 can be interpreted as the change in foreign synergistic acquisitions as a share of total acquisitions and the change in foreign non-synergistic acquisitions as a share of total acquisitions, respectively.

In all cases, the estimated coefficient associated with the crisis dummy is positive, indicating there is an increase in the proportion of both foreign synergistic ($N_{s,jj}$) and foreign non-synergistic acquisitions ($N_{s,mj}$) during crisis periods. The estimated coefficient associated with the crisis dummy is statistically significant at conventional levels in seven of the eight regressions. In addition, the estimated coefficients for synergistic acquisitions are larger than those for non-synergistic acquisitions in each of the regional subsamples, which shows that the percentage point increase of synergistic acquisitions is larger. But because there are on average more synergistic acquisitions, the absolute change in synergistic acquisitions is not completely informative about how the ratio $\frac{N_{s,jj}}{N_{s,mj}}$ changes between normal and crisis periods. This ratio is interesting because it tracks the behavior of synergistic and non-synergistic acquisitions *as a share of foreign acquisitions*. Hence, we next test whether the share of synergistic acquisitions in foreign acquisitions behaves in the way the theory predicts.

4.1.2 Test of Proposition 2: Do Foreign Acquisitions Become Less Synergistic During Crises?

Proposition 2 states that foreign non-synergistic acquisitions as a proportion of foreign transactions should increase during crises under plausible conditions on the distribution of liquidity. That is, it should be the case that $N^F_{C,mj} \geq N^F_{N,mj}$ and $N^F_{C,jj} \leq N^F_{N,jj}$. To test this implication, we limit the sample to foreign acquisitions and use the same LPM specification as in regression 4.1. The dependent variable D_l^{kjct} in the first panel is a dummy variable that takes a value of 1 if the transaction involved a foreign firm acquiring a target in a different industry and 0 otherwise. Because $N^F_{s,jj} = 1 - N^F_{s,mj}$, we only test whether the proportion of non-synergistic acquisitions behaves as predicted. The results indicate that there is less evidence in favor of Proposition 2 than there is for Proposition 1. All of the estimated coefficients are negative, which is the opposite of what the theory predicts.[51]

The dependent variable D_l^{kjct} in the second panel is a dummy variable that takes a value of 1 if the transaction involved a foreign financial firm acquiring a non-financial target and 0 otherwise. There is also little evidence that foreign financial firms undertake more non-financial acquisitions during crises. None of the estimated coefficients is statistically significant at conventional levels.[52]

[51] As the regression results reported in Appendix Table A16 show, there is no systematic pattern in the estimated coefficients associated with the macroeconomic covariates in the sample that includes all foreign non-synergistic acquisitions. In addition, none of the estimated coefficients is statistically significant.

[52] In the subsample for foreign financial acquisitions, a recent depreciation in the exchange rate is associated with an increase in the probability of a foreign non-synergistic acquisition for the full sample and the post-1997 Asia sample. Similarly, for the Asia and the post-1997 Asia subsamples, the IMF loans-GDP ratio is negatively associated with

Overall, the empirical results suggest that the changes in the industry composition of acquirer-target matches in the set of crisis-time foreign acquisitions predicted by Proposition 2 are not confirmed in the data.

We interpret the failure of Proposition 2 through the lens of the model and the stylized facts documented in Section 4. Proposition 2 set out sufficient conditions – that is, a Pareto distribution of liquidity suffering a stochastically dominated shift during crises – under which the composition of foreign acquisitions shifts toward matches where the liquidity provision motive dominates the realization of the surplus related to operational synergies. Our point estimates, however, show that the composition shifts towards synergistic matches, even though the estimates are not statistically significant. As synergistic acquisitions make up the bulk of the foreign acquisitions in emerging market, the patterns during the crisis suggest a continuation of business as usual in this specific dimension. The results in the next two sections provide further evidence in support of this claim.

4.2 The Size of Foreign Acquisitions During Crises

The next predictions of the model we test are related to whether the sizes of the stakes acquired differ across synergistic and non-synergistic transactions and whether the sizes change during crises. The hypotheses suggested by Proposition 3 are that the size of the stakes acquired in synergistic and non-synergistic acquisitions taken individually should not change, but that the overall share acquired in foreign acquisitions declines due to the *composition* of foreign acquisitions shifting towards non-synergistic acquisitions. This conclusion is a direct consequence of Proposition 2).

First, it is important to recognize that the model's implication that the synergistic acquisitions involve larger ownership stakes than non-synergistic acquisitions ($\alpha^*_{jj}(\vec{\theta}) > \alpha^*_{mj}(\vec{\theta})$) is validated by the data: The median percentage acquired by a foreign firm that is in same industry as the target is 60% while it is 51% for a foreign non-synergistic acquisition. To test whether the shares acquired in synergistic and non-synergistic acquisitions are invariant with respect to the incidence of a crisis, we split the sample of foreign acquisitions into synergistic and non-synergistic acquisitions and run the regression:

$$fracacq_{kjct} = \beta_{jc}\boldsymbol{\delta}_{jc} + \beta_C D_{ct} + \boldsymbol{controls}'_{c,t-4}\beta_{mc} + \epsilon_{kjct}, \tag{4.2}$$

where the dependent variable is $fracacq_{kjct}$, the fraction of the firm acquired in transaction k in industry j, country c and time t. The set of explanatory variables is the same as that used in the regression model of the probability of foreign acquisitions.

the probability of a foreign non-synergistic acquisition.

4.2.1 Test of Proposition 3: Is the Average Size of Foreign Ownership Stakes Smaller During Crises?

The results of estimating regression 4.2 are reported in Table 11. Panel A of the table reports the results of the above regression with the sample restricted to the set of foreign synergistic acquisitions. Panel B reports the same results for the sample of foreign non-synergistic acquisitions.

In all but one case, the estimated coefficient associated with the crisis dummy is negative, indicating that crisis periods are associated with a decrease in the average size of foreign acquisitions whether or not they are synergistic or non-synergistic. But the economic significance of the coefficients is small. At most, the estimated coefficient suggests a decrease in the average size of the foreign stake acquired of about 3 percentage points. And none of the estimated coefficients are statistically significant at conventional levels. Thus, we are unable to reject the null hypothesis that the size of acquisitions in each category is invariant to the incidence of a crisis.

Given that the size of stake acquired within each category of foreign acquisition remains, statistically speaking, constant just as the theory predicts, we examine whether there is a decline in the average stake acquired in foreign acquisitions overall, as suggested by Proposition 3. This test amounts to asking whether there is a shift in the composition of foreign acquisitions towards the smaller non-synergistic acquisitions during crises. The regression model used to test this is identical to regression 4.2 above, except that the sample now contains the full set of foreign acquisitions.

Table 12 reports the results of this regression.[53] Although the point estimates of β_C are negative, which is consistent with the theory, there is little evidence of a statistically significant decline in the average size of the stakes acquired during crises.[54] Focusing on the results obtained from the full sample, we see that for each type of transaction, the point estimate is negative but that the parameters are imprecisely estimated. The economic importance of these estimates is also modest. For example, the point estimate associated with the crisis dummy for the full sample (-0.01) implies that there is 1 percentage point decrease in the average stake acquired during a crisis. The sizes of the stakes acquired are not significantly different between crisis and non-crisis periods in any of the regional subsamples.

These regression results provide only weak support for the main prediction of Proposition 3, namely, that the overall size of foreign acquisitions declines if liquidity provision dominates operational synergies as a motive for foreign acquisitions. In addition, the evidence that the size of the stake acquired for each category of foreign acquisition does not change with the incidence of

[53] These conclusions are not sensitive to estimating the model using methods based on the generalized linear model (GLM) that take into account that $fracacq_{kjct}$ is bounded between 0 and 1 (see, e.g., Papke and Wooldridge, 1996). When we estimate the model using GLM, the estimated coefficients associated with the crisis dummy are, in general, statistically insignificant.

[54] Table A17 reports the estimated coefficients for the macroeconomic covariates. In the sample of all foreign acquisitions, the estimated coefficients associated with the level of per capita GDP are statistically significant in three of the four cases, and they are positive. The average size of the stake acquired is larger, the larger is per capita GDP. In three out of four cases, the estimated coefficient associated with the IMF loans-GDP variable are statistically significant. In two cases the sign is positive, and in the third case it is negative.

a crisis suggests that the weak evidence in favor of Proposition 3 is a consequence of the failure of Proposition 2. The data on the size of foreign stakes thus provide further evidence that foreign M&As during financial crises are predominantly motivated by operational synergies with domestic target firms.

4.3 Flipping of Crisis-Time Foreign Acquisitions

Here we examine the model's fourth proposition regarding the duration of foreign acquisitions during crises. According to the model, if liquidity provision dominates operational synergies as the underlying motive, the crisis cohort of foreign acquisitions are more likely to be flipped, implying that they are held on average for a shorter period of time than those made during other periods.

The duration of a foreign acquisition is measured by identifying firms that appear two or more times in the data set as a target. The initial transaction identifies the beginning of the relationship. If a firm appears multiple times as a target, we postulate that the immediately preceding acquirer is divesting. The second or subsequent sale is assumed to mark the end of the immediately preceding ownership relationship. The duration of an acquisition is defined as the length of time between each transaction involving the same target.

The procedure is free of error if an acquisition involves the purchase of 100% of the target. It is, however, not error free for partial acquisitions. Shares of the target may be owned by different entities. But because SDC reports the identity of the firm or parties on the selling side only in a small percentage of total transactions, it is impossible in most cases to confirm at the time of the second transaction whether the initial buyer of the target is now the seller. We only observe that the firm appears again as a target. To address this type of error, we estimate the duration models on the subset of targets for which at least a 50% stake was acquired. By including only majority acquisitions, we are more confident that the subsequent seller was the original buyer. Although restricting the sample in this way reduces the number of foreign acquisitions used in the regressions from 9,192 to 6,514 (see Table 5), we still keep about 71% of foreign acquisitions in the sample. Moreover, the results reported below are insensitive to restricting the sample to the set of 100% acquisitions.

If the target does not appear in the data set after the initial transaction, it means one of three things. First, the firm may have never become a target again. In that case, we correctly code the initial relationship as continuing. Second, the firm may have gone out of business, and we miscode the relationship as continuing. Third, the firm may have been reorganized by the first buyer under a different name and hence does not appear as a target under the same name. In this case, we again miscode the initial relationship as continuing. To correct errors related to the renaming of target firms, we manually checked whether the firms that did not appear more than once in the data set were renamed and corrected those errors where possible. We cannot correct for the errors related to survivorship bias because there is no way of ascertaining bankruptcy based on the data.

We estimate the probability of a resale using Cox regression methods. The hazard function $h(\tau_i)$ is the probability density that firm i experiences an acquisition event in the interval of time $\Delta\tau_i$, conditional on it not having been the target of an acquisition for τ_i units of time since the last acquisition.[55] Under the assumption that most acquisitions on the buyer's side involve a divestiture on the seller's side, the hazard is also a measure of the typical frequency of divestiture for the average firm.[56]

The central assumption of the Cox model is that the hazard rates are proportional to a baseline hazard across different patterns of explanatory variables. While the model assumes no parametric form for the baseline hazards, it posits a functional relationship between hazards for different explanatory variables. Let $h_{jc}(t)$ be the hazard function, where j and c denote target industry and country. The model we estimate is

$$h_{jc}(\tau|\mathbf{X}) = h_{jc}(\tau)\mathrm{e}^{\mathbf{X}'\beta} \quad \text{for } j = 1, 2, ..., J \text{ and } c = 1, 2, ..., C, \tag{4.3}$$

where h_{jc} is the baseline hazard. It differs across each country×target-industry combination. $\mathbf{X}$ is a vector of explanatory variables, and β is a vector of coefficients to be estimated jointly with the baseline hazards h_{jc}. The model can also be written as

$$\ln[h_{jc}(\tau|\mathbf{X})] = \ln[h_{jc}(\tau)] + \mathbf{X}'\beta \quad \text{for } j = 1, 2, ..., J \text{ and } c = 1, 2, ..., C. \tag{4.4}$$

The signs of the estimated coefficients determine the direction that the covariates shifts the logarithm of the baseline hazards. Letting the baseline hazards differ across country-target industry combinations is analogous to having country×target-industry fixed effects with the important difference that the non-parametric estimation also permits the shapes of the baseline hazards to differ (see Kalbfleisch and Prentice, 1980).

[55] An event indexed by i is defined as a transaction in which firm i is a target. The starting time for the risk of a subsequent transaction involving i is set as the time at which the previous transaction between i and an acquirer is completed. The failure time T_i measures the length of time between two consecutive transactions involving firm i as a target. The cumulative density F, the survival function S, the probability density f, and the hazard function h are defined as

$$\begin{aligned}
F(\tau_i) &= \Pr(T_i \leq \tau_i) \\
S(\tau_i) &= 1 - F(\tau_i) = \Pr(T_i > \tau_i) \\
f(\tau_i) &= \frac{dF(\tau_i)}{d\tau_i} = \frac{d(1 - S(\tau_i))}{d\tau_i} = -S'(\tau_i) \\
h(\tau_i) &= \lim_{\Delta\tau_i \to 0} \frac{\Pr(\tau_i + \Delta\tau_i > T_i > \tau_i | T_i > \tau_i)}{\Delta\tau_i} = \frac{f(\tau_i)}{S(\tau_i)}.
\end{aligned}$$

[56] This conclusion may not hold in cases where new shares are issued and bought by the acquirer or when the firm's debt is transformed into equity.

4.3.1 Test of Proposition 4: Do Foreign Acquisitions During Crises Exhibit Higher Flipping Rates?

To test part (i) of Proposition 4, that the crisis cohort of foreign acquisitions as a group have higher flipping rates, we estimate the model

$$\ln[h_{jc}(\tau|\mathbf{X})] = \ln[h_{jc}(\tau)] + \beta_C D_{ct} + \boldsymbol{controls}'_{c,t-4}\beta_{mc} + \epsilon_{kjct}. \tag{4.5}$$

where D_{ct} is the Laeven-Valencia banking crisis dummy, and the other variables are defined as before. The banking crisis dummy in the regression equals 1 if the target was initially acquired during a banking crisis and 0 otherwise. Since part (i) of Proposition 4 states that the crisis cohort of foreign acquisitions has a higher hazard rate of a subsequent acquisition event, or flip, we expect $\beta_C > 0$.

The results reported in the first row of Table 13 are estimates of β_C. A negative coefficient indicates a lower hazard rate of a subsequent transaction and thus a lower probability that the average crisis-time foreign acquisition is flipped. The evidence reported in the table does not support the prediction that foreign acquisitions during crises are more likely to be flipped.[57] All of the estimated coefficients are negative, suggesting that foreign acquisitions that occur during crises last longer than those occurring during normal times. The only estimated coefficient that is statistically significant is the one based on the post-1997 Asia sample. In sum, the regression evidence reported in Table 13 suggests that foreign acquisitions overall are not flipped at faster rates during crisis periods than those that are undertaken during non-crisis periods.

We next test parts (ii) and (iii) of Proposition 4, which predict that the duration of crisis-time foreign synergistic and non-synergistic acquisitions are individually lower. To that end, we estimate the model

$$\ln[h_{jc}(\tau|\mathbf{X})] = \ln[h_{jc}(\tau)] + \beta_C D_{ct} + \beta_{NS} D_{NS}^{kjct} + \beta_{C,NS} D_{C,NS}^{kjct} + \boldsymbol{controls}'_{c,t-4}\beta_{mc} + \epsilon_{kjct} \tag{4.6}$$

where D_{NS}^{kjct} is a dummy variable indicating whether the acquirer and the target are in different SIC categories (i.e., the acquisition is non-synergistic), $D_{C,NS}^{kjct}$ is the interaction between D_{ct} and D_{NS}^{kjct}, and the other variables are defined as before.

The results are reported in Table 14. The first hypothesis is that foreign synergistic acquisitions made during the crisis have higher flipping rates. Since the comparison group in this regression is the set of synergistic acquisitions that occur during normal periods (i.e., the group for which

[57] In the full sample of countries, the estimated coefficient associated with recent GDP growth is negatively related to the probability of a resale in all foreign acquisitions and in foreign non-synergistic acquisitions. In the sample of all foreign acquisitions, the estimated coefficient is statistically significant in two out of four cases. In the set of foreign non-synergistic acquisitions, it is statistically significant in three of the four regressions. The probability of a resale is lower in countries that have grown rapidly – that is, the duration of acquisitions in such countries is higher.

$D_{ct} = 0$ and $D_{NS}^{kjct} = 0$), the estimated coefficient associated with D_{ct} tells us whether synergistic acquisitions that occur during crisis periods (i.e., the group for which $D_{ct} = 1$ and $D_{NS}^{kjct} = 0$) differ from the comparison group. The estimates of β_C in the top panel show that the hazard rates of foreign synergistic acquisitions are statistically indistinguishable from each other between crisis and normal periods. All of the estimated coefficients are negative, which provides weak evidence that the synergistic acquisitions during crises last longer than those that occur during normal times.

Similarly, the rate at which foreign non-synergistic acquisitions are flipped is unaffected by the incidence of a crisis. We examine this hypothesis using a Wald test that the sum of the coefficients $\beta_C + \beta_{C,NS}$ is statistically significantly different from zero.[58] Only one of the Wald test statistics across the regional subsamples is statistically different from zero at conventional levels. There is therefore only weak support for the prediction that the flipping rates of foreign non-synergistic acquisitions are statistically different from each other across the crisis- and normal-time cohorts. Again, all of the estimated coefficients are negative, which is consistent with the duration of foreign non-synergistic acquisitions being longer for the crisis cohort.[59]

Overall, we find weak evidence against the predictions of Proposition 4. The three-period extension of our baseline model provides a way to interpret these negative findings. First, in order for foreign acquirers to flip their acquisitions, we need some of them to be less efficient than domestic firms. This feature of the model is similar to Acharya et al. (2011), who assume that domestic agents are better users of domestic assets than foreign acquirers in their baseline case.[60] The intuition is that once foreign acquirers pay the fixed cost of acquisition, they see no reason to flip their holdings unless the new buyer offers a higher price than the foreigners own valuation of the firm, which can only happen in our model in cases where the foreign agent is less efficient than the domestic ones. Our empirical finding is that the crisis cohort of the individual categories of foreign acquisitions, as well as foreign acquisitions overall, do not have higher flipping rates. The

[58] The sum of the coefficients can be written as $\beta_C + \beta_{C,NS} = (\beta_C + \beta_{NS} + \beta_{C,NS}) - \beta_{NS}$. The term in parentheses is the conditional mean hazard rate of the group of non-synergistic acquisitions that occur during crisis periods (i.e., the group for which $D_{ct} = 1$ and $D_{NS}^{kjct} = 1$). β_{NS} is the conditional mean hazard rate of the group of non-synergistic acquisitions that occur during normal periods (i.e., the group for which $D_{ct} = 0$ and $D_{NS}^{kjct} = 1$).

[59] These results are for foreign acquisitions in which the acquirer owned 50% or more of the target firm after completing the transaction. We also estimate the model based on the subsample of acquisitions in which 100% of the target was purchased by the acquirer. We do not report these results because it reduces the number of observations substantially in the Asia, post-1997 Asia, and non-Asia samples. The point estimates obtained from those regressions for the full sample are $\beta_C = -.09$ (std. err. $= 0.27$), and $\beta_C = 0.16$ (std. err. $= 0.28$), $\beta_{NS} = 0.62$ (std. err. $= 0.28$), and $\beta_{C,NS} = -0.62$ (std. err. $= 0.49$), respectively. These estimates correspond to the first columns of Tables 13 and 14.

[60] This assumption stands in contrast to the one made by Aguiar and Gopinath (2005), who assume that foreign acquirers are more productive than their domestic counterparts. In an extension of their baseline model, Acharya et al. (2011) consider the case of differential efficiency among foreigners and derive results very similar to ours. Briefly, they find that moderate crises improve allocative efficiency because they lower the barriers of entry for efficient foreign acquirers. On the other hand, severe crises see the entry of less efficient foreign acquirers who flip their purchased assets. In our model, crisis severity is related to the degree to which the distribution of liquidity shifts towards lower values. Our model has very similar implications because a greater mass of target firms in the lower values of liquidity (severe crises) implies that more firms come under the control of the less efficient foreign acquirers.

mechanism of the model suggests that the failure of the assumption that delivered the flipping result – that there are a significant number of foreign acquirers that are less efficient than their emerging market counterparts – is a plausible cause for the empirical failure of the prediction. The evidence about flipping is thus consistent with our findings for the industry composition and size of acquisitions. It suggests that, on average, foreign acquisitions in emerging markets are characterized by operational synergies. Moreover, the foreign acquisitions during crises are not different from "business as usual" foreign M&A activity in emerging markets, judged on the basis of three important metrics – their industry composition, their size, and their duration.

4.4 Sensitivity Analysis

In this section, we discuss the sensitivity of our tests of the model's four propositions to (1) the use of alternative crisis dummy variables; and (2) the omission of the macroeconomic controls from the regressions. In general, the main conclusions of empirical analysis using the benchmark specification are insensitive to changing the regression models in these ways.

4.4.1 Sensitivity to the Use of Alternative Crisis Dummy Variables

We estimated the regressions with the Laeven and Valencia currency crisis dummy variable and a twin crisis dummy variable that is the interaction between the banking crisis and the currency crisis dummy variables. The results are reported in Tables A3 to A10 in the Appendix. The regression results that use the alternative crisis dummy variables are broadly consistent with those obtained in the benchmark regressions that use the banking crisis dummy. The evidence continues to support the prediction of Proposition 1 that crises are associated with a surge in foreign acquisitions. More generally, to the extent that the results change in certain regional subsamples, they do so in a way that is more consistent with the model's predictions regarding certain characteristics of foreign acquisitions during crises when the liquidity motive predominates.

The differences in terms of statistical significance, but not of sign, between the benchmark regression results and the ones that use the other crisis dummies are found in the Asian subsamples (Asia and post-1997 Asia). First, the estimated coefficient associated with the currency dummy variable for foreign financial acquisitions is negative and statistically significant, lending support to Proposition 2 for this type of acquisition. Similar results obtain when we use the twin crisis dummy variable. Second, there is stronger evidence in favor of Proposition 3 for foreign financial acquisitions using the currency and twin crisis dummy variables. The signs of the estimated coefficients in the benchmark regressions are consistent with Proposition 3, but none of them is significant. In the Asian subsamples, however, there is a negative, statistically significant relationship between the currency and twin crisis dummy variables and the average sizes of the stake acquired.

There are also differences in the signs of the estimated coefficients for the non-Asia subsample that are consistent with the predictions of Propositions 2 and 4. For Proposition 2, we find that

the likelihood of foreign non-synergistic acquisitions is significantly higher using the currency crisis dummy for this subsample. For Proposition 4, there is a statistically significant positive relationship between the incidence of a crisis and the conditional probability of a resale in non-synergistic acquisitions, just as the model predicts. And the evidence supporting Proposition 4 in the full sample of countries is clearly driven by the non-Asia sample, which includes almost exclusively Latin American countries, because the estimated coefficients for the Asia subsample are the opposite sign and are not statistically significant.

In sum, we find evidence that the liquidity provision motive only seems to dominates the operational synergy motive during Latin American currency crises. Aside from this case, the empirical findings in the sensitivity analysis are consistent with the business as usual view of foreign M&As in emerging economies.

4.4.2 Sensitivity to the Inclusion of Macroeconomic Controls

To examine whether the results are sensitive to including the macroeconomic controls – after all, the controls and the dummy variable may both proxy for the crisis effect – we re-estimate the regressions without the macroeconomic controls. The results are reported in Tables A11 to A14 in the Appendix.

Omitting the macroeconomic controls does not alter the central conclusions of the empirical analysis about the model's four propositions. There is still evidence supporting the implication of Proposition 1 that crises are associated with increase in foreign acquisitions and weak evidence against Proposition 2, just as we found in the benchmark specification. While the economic significance of the estimated coefficients in the test of Proposition 3 remain the same in the specification without macroeconomic controls, none of them is statistically significant. Finally, omitting the controls from the Cox regressions does not change our conclusions about the relationship between liquidity crises and the duration of foreign acquisitions. The results are thus not sensitive to omitting the macroeconomic controls from the regressions.

5 Conclusion

We derive a theoretical model of fire-sale FDI and test its four main predictions regarding the frequency of foreign acquisitions, the frequency of acquisitions between firms in the same industry, the size of foreign ownership stakes, and the duration of ownership, both in and out of crises. We extend the model in Aguiar and Gopinath (2005) in three ways. First, we introduce industry-level synergies to the model, so that foreign acquisitions involving firms in the same industry generate larger gains in productivity than those involving firms in different industries. Second, a foreign firm can acquire partial stakes in a domestic target. Foreign acquisitions that are more productive result in larger stakes acquired because of the transfer of technology or the better alignment of

incentives. Third, foreign acquirers can flip their acquisition. The incentive to flip follows from the assumption that foreign acquirers possess different levels of efficiency, as in Acharya et al. (2011).

These features of the model are motivated by a set of stylized facts that we document using a new data set of M&As in sixteen emerging markets between the years 1990 and 2007. While the number of foreign acquisitions in these markets has varied over this period, business as usual is characterized by a preponderance of same-industry, or synergistic, acquisitions, heterogeneity in the size of the foreign ownership stakes acquired, and differences in the duration of foreign acquisitions. The model can thus be used as a benchmark to examine how foreign acquisitions differ in these three dimensions between crisis and non-crisis periods, and it provides us with testable predictions about such differences.

The model's first prediction is that foreign acquisitions are more common during crises, which is similar to the theoretical results of Aguiar and Gopinath (2005) and Acharya et al. (2011). The second prediction is that the industry composition of acquisitions shifts towards matches between acquirer and target firms in different industries during crises. If there are industry-specific expertise or assets (see Williamson, 1988; Shleifer and Vishny, 1992, among many other), this implication of the model amounts to matches characterized by lower operational synergies. The third prediction is that the average size of foreign stakes purchased in targets should decrease during crises. This result stands in contrast to Acharya et al. (2011). In that model, foreign firms buy larger stakes during crises to ameliorate countercyclical agency problems. Intuitively, our result is driven by lower asset prices during crises increasing the proportion of low-synergy matches, which leads to a smaller stake being bought on average. The fourth and final prediction is that crisis-time acquisitions should be flipped more than those made during normal times as long term synergies are lower for the crisis cohort of acquisitions. This prediction is consistent with the theoretical results in Acharya et al. (2011).

We use our data set to evaluate the model's predictions. There is evidence consistent with the model's first prediction that the probability of a foreign acquisition is positively related to the incidence of a crisis, and the size of the crisis effect on the probability of foreign acquisition is economically large. This finding is consistent with those obtained by Aguiar and Gopinath (2005) and Acharya et al. (2011), who conclude that domestic firms become credit constrained during crises. Foreign acquirers unaffected by the crisis have access to more liquidity than domestic firms and are therefore better positioned to take advantage of buying opportunities in the countries affected by the crisis. In that respect, the regression evidence supports the view that foreign acquirers provide liquidity during crises. This conclusion is broadly robust to the use of alternative estimation techniques and empirical specifications.

On the other hand, there is weaker support for the model's other three predictions. While the model suggests that foreign acquisitions should become less synergistic during crises as the proportion of matches motivated by liquidity provision increases, there is no strong evidence for

this claim. Furthermore, there is little evidence supporting the model's third prediction that the average size of the foreign stake acquired becomes smaller during crises. Although the estimated effect of the crisis on the size of the foreign stake is negative, it is economically small and statistically insignificant. Finally, the duration models we estimate provide little evidence in favor of the model's fourth prediction that the rate at which a crisis-time foreign acquisition is flipped is higher than that of such an acquisition completed during a normal period.

In conclusion, we find there is a surge of foreign acquisitions during financial crises in emerging markets. However, these acquisitions do not appear to differ from "business as usual" in the market for corporate control in emerging markets, judged on the basis of three important metrics – their industry composition, size, and duration.

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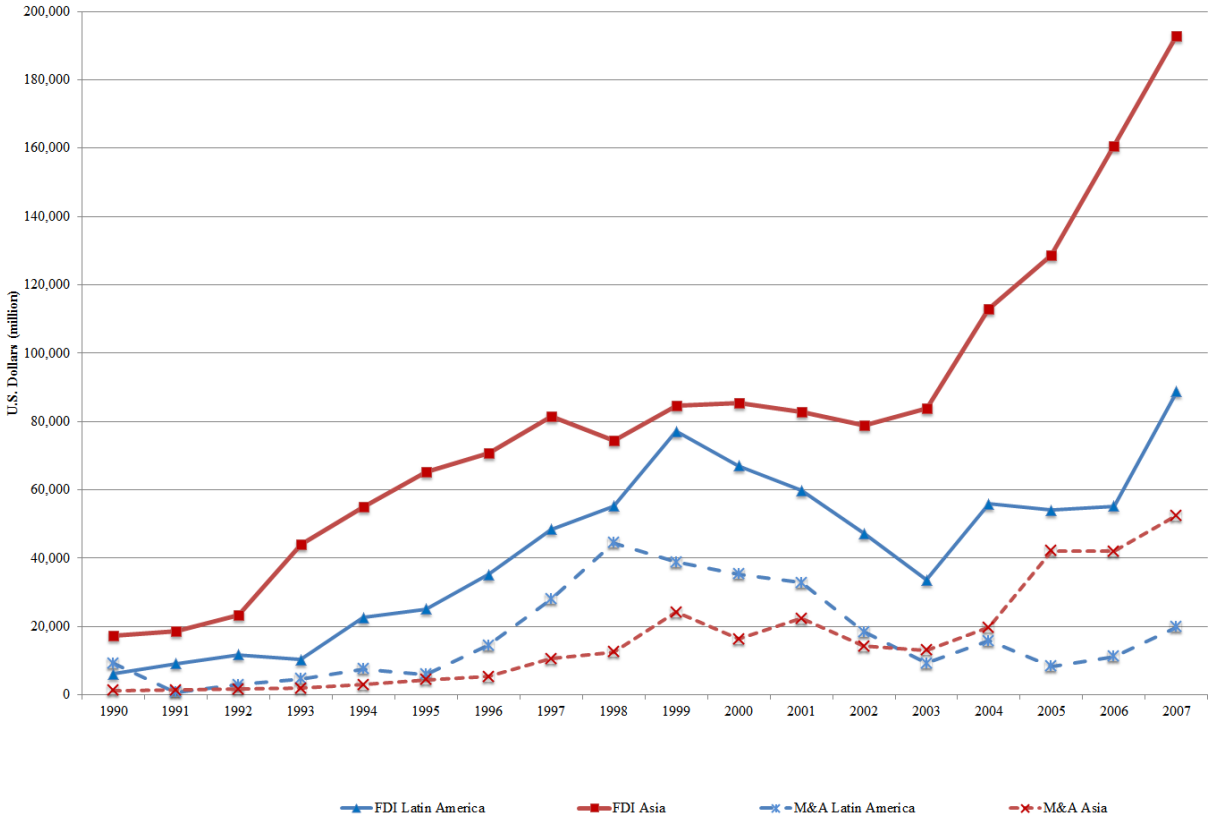
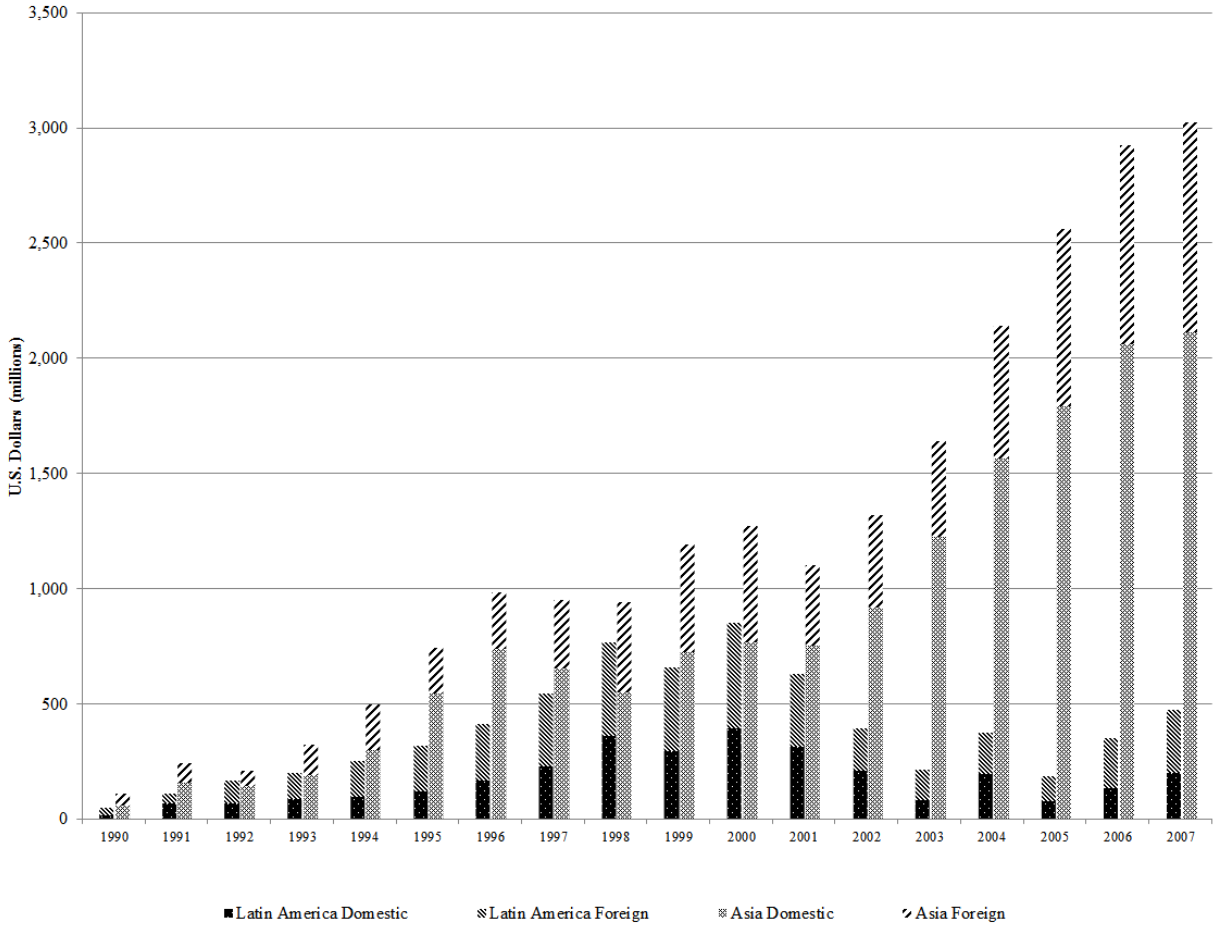
Figure 1: Foreign Direct Investment Inflows and the Value of Acquisitions by Foreign Firms and Region



Sources: UNCTAD's *World Investment Report*; and authors' calculations.

Figure 2: Acquisitions in Latin America and Asia by Foreign and Domestic Firms



Sources: UNCTAD's *World Investment Report*; and authors' calculations.

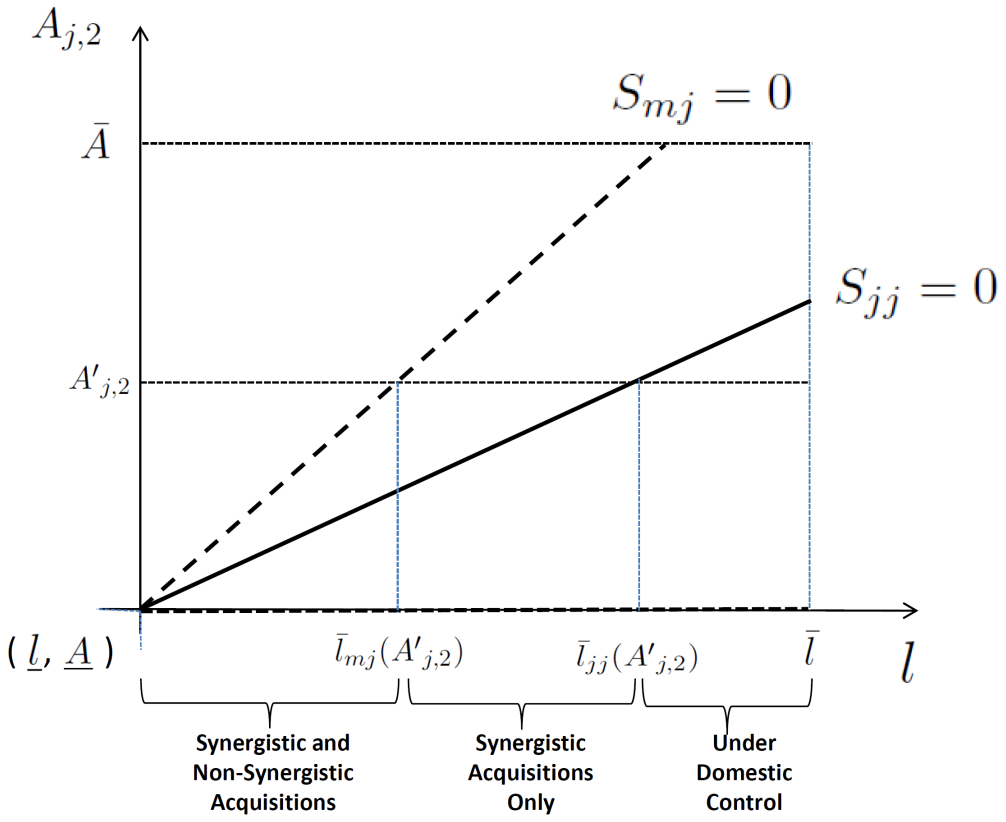


Figure 3: Types of Foreign Acquisitions in Target Country

Notes: Liquidity is plotted on the horizontal axis and second period productivity on the vertical axis. The dotted line labelled $S_{mj} = 0$ plots the locus of points that yield zero surplus for non-synergistic acquisitions. The solid line labelled $S_{jj} = 0$ shows locus for synergistic acquisitions. The supports of liquidity and productivity are $[\underline{l}, \bar{l}]$ and $[\underline{A}, \bar{A}]$. The figure also shows the cut-offs $\bar{l}_{mj}$ and $\bar{l}_{jj}$ as functions of an arbitrary level of productivity $A'_{j,2}$, as described in the text.

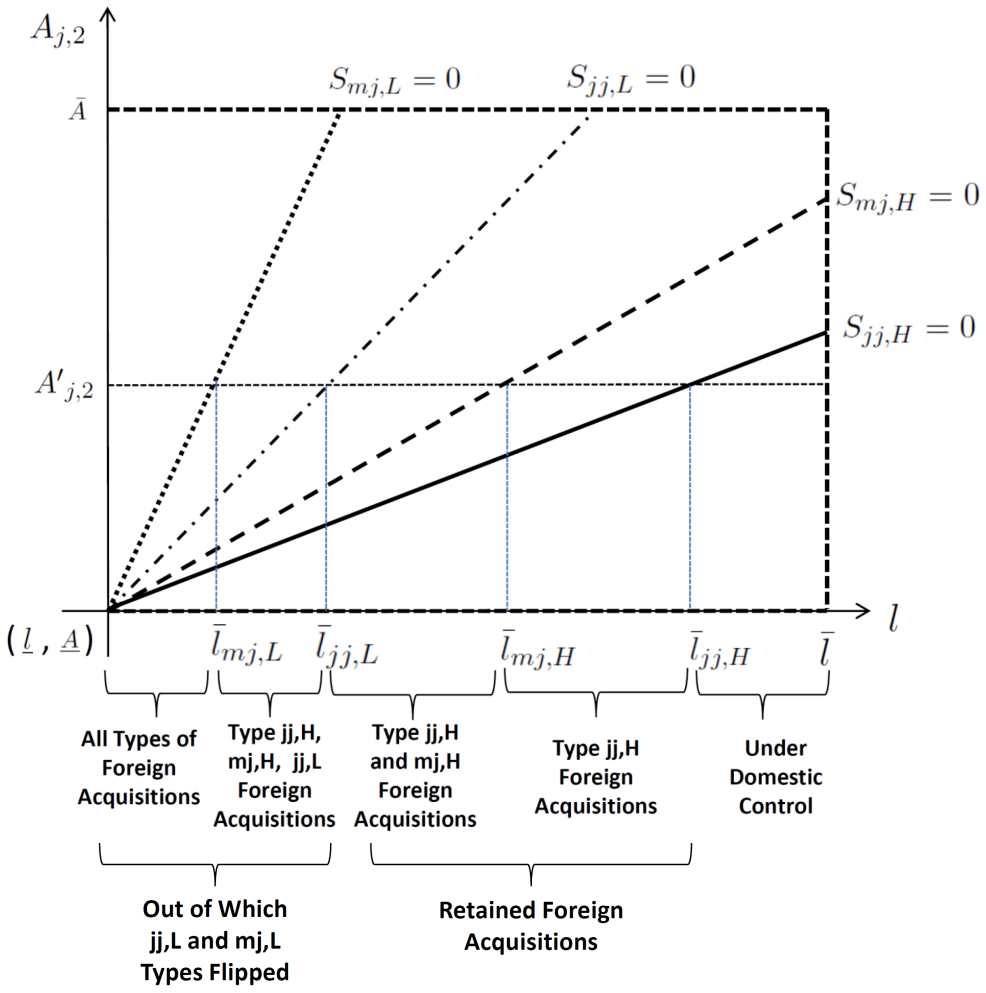


Figure 4: Flipping and Foreign Acquisitions

Notes: Liquidity is plotted on the horizontal axis and second period productivity on the vertical axis. The line labelled $S_{jj,H}$ plots the locus of points that yield zero surplus for synergistic acquisitions that are not flipped. The lines $S_{mj,H}$, $S_{jj,L}$ and $S_{mj,L}$ defined similarly. The supports of liquidity and productivity are $[\underline{l}, \bar{l}]$ and $[\underline{A}, \bar{A}]$. The figure also shows the cut-offs $\bar{l}_{jj,H}$, $\bar{l}_{mj,H}$, $\bar{l}_{jj,L}$, and $\bar{l}_{mj,L}$ for an arbitrary level of productivity $A'_{j,2}$, as described in the text.

Table 1: Transactions by Country Origin of Target

		No. of Transactions					Share of Foreign Acquirers			
		1990-94	1995-99	2000-04	2005-07	Total	1990-94	1995-99	2000-04	2005-07
Latin America										
	Argentina	162	766	551	181	1,660	0.54	0.52	0.51	0.57
	Brazil	168	922	902	268	2,260	0.47	0.52	0.43	0.34
	Chile	85	263	290	125	763	0.68	0.57	0.44	0.46
	Mexico	281	481	497	302	1,561	0.51	0.60	0.60	0.76
	Peru	48	138	115	71	372	0.48	0.48	0.47	0.69
	Total	744	2,570	2,355	947	6,616	0.53	0.54	0.49	0.56
Asia										
	China	113	603	1,922	1,869	4,507	0.68	0.55	0.37	0.39
	India	61	66	289	1,591	2,007	0.56	0.30	0.29	0.28
	Indonesia	86	227	239	145	697	0.56	0.48	0.38	0.39
	Malaysia	392	1,728	1,976	1,695	5,791	0.14	0.06	0.05	0.06
	Philippines	63	290	247	178	778	0.43	0.34	0.27	0.23
	Singapore	369	679	452	685	2,185	0.27	0.25	0.24	0.26
	South Korea	48	321	753	977	2,099	0.33	0.56	0.29	0.10
	Taiwan	45	141	352	209	747	0.53	0.41	0.36	0.34
	Thailand	94	389	617	390	1,490	0.36	0.41	0.19	0.16
	Vietnam	16	18	34	41	109	0.56	0.67	0.59	0.51
	Total	1,287	4,462	6,881	7,780	20,410	0.33	0.28	0.24	0.23
South Africa		315	1,349	737	301	2,702	0.18	0.21	0.26	0.38
All Countries		2,346	8,381	9,973	9,028	29,728	0.37	0.35	0.30	0.27

Notes: The data are from SDC Thompson, as described in the text. The table reports the total number of domestic and foreign transactions and the share of foreign transactions by the country origin of the target.

Table 2: Foreign Transactions by Country Origin of Acquirer

	No. of Transactions					Share of Foreign Acquisitions
	1990-94	1995-99	2000-04	2005-07	Total	
United States	304	1,132	921	751	3,108	0.34
Europe	272	1,034	1,083	743	3,132	0.34
Asia	177	457	618	517	1,769	0.19
of which						
Japan	71	186	176	145	578	0.06
Hong Kong	106	262	430	361	1,159	0.13
Australia, Canada, and New Zealand	113	232	284	322	951	0.10
Other	7	42	68	115	232	0.03
All Countries	873	2,897	2,974	2,448	9,192	

Notes: The data are from SDC Thompson, as described in the text. The table reports the total number of foreign transactions and the share of foreign transactions relative to the total number of foreign and domestic transactions by the country origin of the acquirer.

Table 3: Acquirer and Target Industry, Foreign and Domestic Acquirers

Acquirer SIC Category		Target SIC Category										Total
		0	1	2	3	4	5	6	7	8	9	
0	Agriculture, Forestry, and Fishing	**129**	3	96	10	18	19	65	7	7	0	354
1	Mining and Construction	5	**1,209**	96	122	123	45	233	39	53	1	1,926
2	Manufacturing (food, textiles, petroleum)	109	92	**2,739**	272	110	282	378	104	79	4	4,169
3	Manufacturing (rubber, electronics)	15	135	308	**3,016**	195	248	414	253	108	8	4,700
4	Transport and Communications	2	77	79	116	**1,683**	64	175	230	35	11	2,472
5	Wholesale and Retail	16	47	174	188	76	**701**	201	126	32	2	1,563
6	Finance, Insurance, and Real Estate	123	481	1,262	1,335	943	642	**4,942**	1,044	378	15	11,165
7	Services (hotels, amusement)	10	23	79	150	160	107	233	**1,488**	111	0	2,361
8	Services (education, legal, other)	4	47	44	86	49	42	135	120	**440**	6	973
9	Public Administration	0	3	0	5	12	1	9	3	5	**7**	45
	Total	413	2,117	4,877	5,300	3,369	2,151	6,785	3,414	1,248	54	29,728

Notes: The data are from SDC Thompson, as described in the text. The table reports the number of acquisitions that occur between acquirers and targets in various SIC categories. The information regarding the number of acquisitions that occur in the same SIC category can be read off of the main diagonal, and the entries are in bold.

Table 4: Acquirer and Target Industry, Foreign Acquirers Only

Acquirer SIC Category		Target SIC Category										Total
		0	1	2	3	4	5	6	7	8	9	
0	Agriculture, Forestry, and Fishing	**26**	0	19	3	0	4	3	0	0	0	55
1	Mining and Construction	0	**660**	33	35	33	11	15	12	10	1	810
2	Manufacturing (food, textiles, petroleum)	26	40	**1,103**	97	28	86	42	24	15	2	1,463
3	Manufacturing (rubber, electronics)	7	47	110	**1,289**	53	100	52	86	21	2	1,767
4	Transport and Communications	1	35	25	30	**609**	18	51	71	5	4	849
5	Wholesale and Retail	11	18	64	64	24	**198**	22	34	6	1	442
6	Finance, Insurance, and Real Estate	18	130	293	313	262	119	**1,154**	258	54	5	2,606
7	Services (hotels, amusement)	4	10	20	50	62	45	48	**621**	42	0	902
8	Services (education, legal, other)	0	11	12	29	11	5	15	54	**156**	0	293
9	Public Administration	0	1	0	0	2	0	0	1	0	**1**	5
	Total	93	952	1,679	1,910	1,084	586	1,402	1,161	309	16	9,192

Notes: The data are from SDC Thompson, as described in the text. The table reports the number of acquisitions that occur between acquirers and targets in various SIC categories. The information regarding the number of acquisitions that occur in the same SIC category can be read off of the main diagonal, and the entries are in bold.

Table 5: Share of Target Owned by Acquirer After the Transaction

	Domestic		Foreign		
Share	Freq.	Per cent	Freq.	Per cent	Total
$\leq 10\%$	1,211	5.9%	498	5.4%	1,709
$10-20\%$	1,367	6.7%	640	7%	2,007
$20-30\%$	1,365	6.7%	618	6.7%	1,983
$30-40\%$	933	4.5%	456	5%	1,389
$40-50\%$	958	4.7%	466	5.1%	1,424
$50-60\%$	1,712	8.3%	901	9.8%	2,613
$60-70\%$	1,252	6.1%	493	5.4%	1,745
$70-80\%$	521	2.5%	215	2.3%	736
$80-90\%$	758	3.7%	344	3.7%	1,102
$90-100\%$	589	2.9%	218	2.4%	807
100%	9,870	48.1%	4,343	47.3%	14,213
Total	20,536	100%	9,192	100%	29,728
Share $\geq 10\%$	19,325	94.1%	8,694	94.6%	28,019
Share $\geq 50\%$	14,702	71.6%	6,514	70.9%	21,216

Notes: The data are from SDC Thompson, as described in the text. The table reports the frequency and percentage of foreign and domestic acquisitions ranked by the share of the target owned after a transaction was completed.

Table 6: Foreign Acquisitions Resold by Country Origin of Target

Stake Acquired		≥ 50%			100%		
		Freq.	Per cent	Total	Freq.	Per cent	Total
Latin America							
	Argentina	65	10.0	650	19	4.3	441
	Brazil	54	6.7	809	21	3.8	554
	Chile	34	11.6	294	6	3.2	190
	Mexico	38	4.9	782	12	1.9	630
	Peru	15	9.7	154	5	4.8	104
Asia							
	China	47	3.5	1,332	13	1.6	812
	India	14	4.8	294	0	0.0	167
	Indonesia	28	16.7	168	8	10.8	74
	Malaysia	22	9.6	230	4	2.6	153
	Philippines	19	14.8	128	7	8.6	81
	Singapore	27	6.9	394	5	1.8	279
	South Korea	38	11.1	344	10	4.5	222
	Taiwan	6	3.0	201	4	2.8	141
	Thailand	22	11.4	193	3	3.0	101
	Vietnam	1	3.0	33	1	5.6	18
South Africa		31	6.1	508	12	3.2	376
All Countries		461	7.1	6,514	130	3.0	4,343

Notes: The data are from SDC Thompson, as described in the text. The table reports the frequency and percentage of foreign acquisitions that are resold by the target's country origin. The left panel depicts the data for acquisitions in which at least a 50% foreign stake was acquired. The right panel depicts the data for acquisitions in which a 100% foreign stake was acquired.

Table 7: Summary Statistics of the Macroeconomic Covariates

		Real GDP per capita		Real GDP growth		Change in nominal exchange rate		IMF credit and loans	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Latin America									
	Argentina	8,729	2,295	3.1	6.7	32.6	185.7	259.7	140.1
	Brazil	7,029	1,056	2.4	2.5	26.3	49.9	156.2	207.8
	Chile	9,134	1,496	6.0	3.2	1.2	4.9	45.7	74.4
	Mexico	10,130	965	3.3	3.0	2.5	8.2	218.1	196.7
	Peru	4,289	847	2.9	5.5	24.4	149.9	99.2	61.9
Asia									
	China	3,373	1,116	9.7	2.9	1.2	6.8	3.0	8.0
	India	1,716	447	6.2	2.2	1.6	4.2	39.5	44.5
	Indonesia	3,179	413	5.1	5.0	3.4	16.3	160.0	159.5
	Malaysia	8,776	1,042	6.7	4.3	0.5	4.8	0.0	0.0
	Philippines	3,380	421	3.7	2.2	1.3	5.7	121.6	54.2
	Singapore	26,478	4,979	7.0	3.7	−0.3	2.7	0.0	0.0
	South Korea	17,092	4,659	6.1	3.7	0.8	11.0	140.9	379.6
	Taiwan	20,265	4,049	5.7	2.4	0.0	0.0	0.0	0.0
	Thailand	6,113	974	5.7	4.7	0.7	7.1	70.9	113.4
	Vietnam	1,730	434	7.3	1.5	6.3	42.7	72.6	34.0
South Africa		5,937	517	2.5	2.1	1.8	7.3	10.3	18.0

Notes: Real GDP is the output-side real GDP at chained PPP in millions of 2005 USD from the Penn World Tables. Real GDP per capita is real GDP divided by the population in millions, and real GDP growth is the year-over-year percent change. The change in the nominal exchange rate is the quarter-to-quarter percent change of the national currency per USD end of period exchange rate. IMF credit and loans are the total liabilities as a percentage of each country's quota. The exchange rate data and the IMF credit and loans data are from the IMF International Financial Statistics database.

Table 8: Test of Proposition 1: Is the Probability of Foreign Acquisitions Higher During Crises?

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.09***	0.11***	0.12***	0.06**
	(0.02)	(0.03)	(0.03)	(0.03)
R^2	0.16	0.13	0.13	0.12
No. Obs.	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.03***	0.02*	0.03**	0.04**
	(0.01)	(0.01)	(0.01)	(0.02)
R^2	0.09	0.08	0.08	0.12
No. Obs.	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from the linear probability model. The regression is equation 4.1 in the text. The sample contains transactions involving both foreign and domestic acquirers. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table 9: How Do Foreign Synergistic and Non-Synergistic Acquisitions as a Share of All Acquisitions Change During Crises?

	Foreign Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.07***	0.07***	0.08***	0.05*
	(0.02)	(0.02)	(0.03)	(0.03)
R^2	0.12	0.09	0.09	0.11
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.03***	0.03***	0.04***	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
R^2	0.06	0.07	0.07	0.05
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from the linear probability model. The sample contains all transactions. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered two-way at the level of country×target-industry and month and are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table 10: Test of Proposition 2: Do Foreign Acquisitions Become Less Synergistic During Crises?

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.03	-0.02	-0.02	-0.02
	(0.02)	(0.03)	(0.03)	(0.02)
R^2	0.12	0.11	0.12	0.11
No. Obs.	9,192	5,103	4,370	4,089
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of Non-Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.04	-0.03	-0.05	-0.05
	(0.03)	(0.05)	(0.05)	(0.04)
R^2	0.05	0.06	0.06	0.03
No. Obs.	2,606	1,732	1,504	874
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from the linear probability model. The regression is Equation 4.1 in the text. The sample contains only foreign transactions. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. In the first panel, the standard errors are clustered two-way at the level of country×target-industry and month and are reported in parentheses. In the second panel, they are clustered at the level of the country and month, as described in the text, and are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects, the country fixed effects, and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table 11: Test of Proposition 3: Does the Average Size of Foreign Synergistic and Non-Synergistic Acquisitions Change During Crises?

	Foreign Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.01	-0.00	-0.00	-0.03
	(0.02)	(0.03)	(0.03)	(0.02)
R^2	0.15	0.14	0.14	0.10
No. Obs	5,817	3,007	2,576	2,810
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.00	-0.01	-0.02	0.00
	(0.02)	(0.03)	(0.03)	(0.03)
R^2	0.16	0.13	0.15	0.12
No. Obs	3,375	2,096	1,794	1,279
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from a regression with the fraction acquired as the dependent variable. The sample in the first panel contains only foreign synergistic transactions. The sample is the second panel contains only foreign non-synergistic transactions. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table 12: Test of Proposition 3: Is the Average Size of Foreign Ownership Stakes Smaller During Crises?

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.01	-0.01	-0.01	-0.02
	(0.01)	(0.02)	(0.03)	(0.02)
R^2	0.12	0.10	0.10	0.09
No. Obs.	9,192	5,103	4,370	4,089
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.05	-0.06	0.00
	(0.03)	(0.04)	(0.05)	(0.03)
R^2	0.17	0.15	0.18	0.12
No. Obs.	2,606	1,732	1,504	874
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from a regression with the fraction acquired as the dependent variable. The regression is Equation 4.2 in the text. The sample contains only foreign transactions. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table 13: Test of Proposition 4: Do Foreign Acquisitions During Crises Exhibit Higher Flipping Rates?

	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.16	-0.24	-0.46^{**}	-0.09
	(0.15)	(0.22)	(0.22)	(0.21)
No. Obs.	$6,514$	$3,317$	$2,933$	$3,197$
Log L	$-1,771.9$	-807.0	-663.1	-963.1
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficients associated with the banking crisis dummy β_C obtained from the Cox regression model. The regression is Equation 4.5 in the text. It is based on the sample of foreign acquisitions in which post-acquisition stake is at least 50%. The dates for the domestic banking crises are from Laeven and Valencia (2010). Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. The coefficient estimates for the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table 14: Test of Proposition 4: Do Foreign Synergistic and Non-Synergistic Acquisitions During Crises Differ in Their Flipping Rates?

	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	−0.05	−0.04	−0.32	−0.05
	(0.17)	(0.25)	(0.25)	(0.23)
$\hat{\beta}_{NS}$	0.37***	0.55***	0.43*	0.19
	(0.14)	(0.18)	(0.23)	(0.21)
$\hat{\beta}_{C,NS}$	−0.32	−0.54	−0.38	−0.12
	(0.29)	(0.45)	(0.49)	(0.38)
$H_0 : \beta_C + \beta_{C,NS} = 0$	−0.37	−0.57	−0.70*	−0.17
No. Obs.	6,514	3,317	2,933	3,197
Log L	−1,766.6	−801.1	−660.2	−962.3
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficients associated with the banking crisis dummy β_C, the cross-industry dummy β_{NS}, and the interaction between the two $\beta_{C,NS}$ obtained from the Cox regression model. The regression is Equation 4.6 in the text. It is based on the sample of foreign acquisitions in which the post-acquisition stake is least 50%. The dates for the domestic banking crises are from Laeven and Valencia (2010). Standard errors are reported in parentheses. The table also reports the test statistics of the linear combination test for a difference in flipping rates between non-synergistic acquisitions in and out of crises. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. The coefficient estimates for the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

A Appendix: Additional Tables

Table A1: How Do the Shares of Foreign Synergistic and Non-Synergistic Acquisitions Change During Crises? - Financial Acquirers Only

	Foreign Financial Acquisitions of Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.04**	0.03	0.04*	0.07*
	(0.02)	(0.02)	(0.02)	(0.04)
R^2	0.26	0.25	0.26	0.29
No. Obs	11,165	8,088	6,808	3,077
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of Non-Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.03***	0.03**	0.03**	0.01
	(0.01)	(0.02)	(0.02)	(0.03)
R^2	0.06	0.22	0.22	0.23
No. Obs	11,165	8,088	6,808	3,077
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from the linear probability model. The sample contains all transactions by financial acquirers, domestic and foreign. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered two-way at the level of country×target-industry and month and are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A2: Does the Average Size of Foreign Synergistic and Non-Synergistic Acquisitions Change During Crises? - Financial Acquirers Only

	Foreign Financial Acquisitions of Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.04	-0.08	-0.10	-0.00
	(0.05)	(0.07)	(0.08)	(0.04)
R^2	0.10	0.11	0.12	0.05
No. Obs	1,154	747	654	407
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of Non-Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.03	-0.03	-0.00
	(0.04)	(0.06)	(0.06)	(0.05)
R^2	0.22	0.19	0.23	0.19
No. Obs	1,452	985	850	467
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from a regression with the fraction acquired as the dependent variable. The sample in the first panel contains only foreign financial acquisitions of financial targets. The sample is the second panel contains only foreign financial acquisitions of non-financial targets. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space. This table replicates Table 11 in the main set of tables, but for financial acquirers only.

Table A3: Test of Proposition 1: Currency crisis dummy

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.11***	0.18***	0.19***	0.05*
	(0.03)	(0.06)	(0.06)	(0.03)
R^2	0.15	0.13	0.13	0.12
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.03***	0.03*	0.04*	0.04***
	(0.01)	(0.02)	(0.02)	(0.01)
R^2	0.09	0.08	0.08	0.12
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the currency crisis dummy β_C obtained from the linear probability model. The regression is equation 4.1 in the text. The sample contains transactions involving both foreign and domestic acquirers. The dates for the currency crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A4: Test of Proposition 2: Currency crisis dummy

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.00	-0.04	-0.03	0.04
	(0.03)	(0.05)	(0.06)	(0.03)
R^2	0.12	0.11	0.12	0.11
No. Obs	9,192	5,103	4,370	4,089
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of Non-Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.22**	-0.24***	0.08**
	(0.07)	(0.09)	(0.08)	(0.03)
R^2	0.05	0.06	0.06	0.03
No. Obs	2,606	1,732	1,504	874
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the currency crisis dummy β_C obtained from the linear probability model. The regression is Equation 4.1 in the text. The sample contains only foreign transactions. The dates for the currency crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. In the first panel, the standard errors are clustered two-way at the level of country×target-industry and month and are reported in parentheses. In the second panel, they are clustered at the level of the country and month, as described in the text, and are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects, the country fixed effects, and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A5: Test of Proposition 3: Currency crisis dummy

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.01	0.01	0.01	-0.03
	(0.02)	(0.04)	(0.04)	(0.02)
R^2	0.12	0.09	0.10	0.09
No. Obs	9,192	5,103	4,370	4,089
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.12*	-0.12*	0.02
	(0.04)	(0.07)	(0.07)	(0.04)
R^2	0.17	0.15	0.18	0.12
No. Obs	2,606	1,732	1,504	874
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from a regression with the fraction acquired as the dependent variable. The regression is Equation 4.2 in the text. The sample contains only foreign transactions. The dates for the currency crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A6: Test of Proposition 4: Currency crisis dummy

	Foreign Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.05	-0.40	-0.56*	0.36
	(0.26)	(0.33)	(0.30)	(0.35)
No. Obs	6,514	3,317	2,933	3,197
Log L	$-1,772.6$	-806.9	-663.7	-962.3
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.51*	-0.46	-0.68**	-0.45
	(0.29)	(0.37)	(0.33)	(0.48)
$\hat{\beta}_{NS}$	0.25*	0.44**	0.33	0.03
	(0.13)	(0.18)	(0.23)	(0.19)
$\hat{\beta}_{C,NS}$	1.11***	0.33	0.52	1.58***
	(0.42)	(0.76)	(0.79)	(0.50)
$H_0 : \beta_C + \beta_{C,NS} = 0$	0.60*	-0.13	-0.17	1.08***
No. Obs	6,514	3,317	2,933	3,197
Log L	-1,764.1	-802.0	-661.1	-957.2
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficients associated with the currency crisis dummy β_C obtained from the Cox regression model. The regression is Equation 4.5 in the text. It is based on the sample of foreign acquisitions in which post-acquisition stake is at least 50%. The dates for the currency crises are from Laeven and Valencia (2010). Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. The coefficient estimates for the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A7: Test of Proposition 1: Twin crisis dummy

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.12***	0.18***	0.19***	0.04
	(0.04)	(0.06)	(0.06)	(0.04)
R^2	0.15	0.13	0.13	0.12
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.03**	0.03*	0.04*	0.05**
	(0.01)	(0.02)	(0.02)	(0.02)
R^2	0.09	0.08	0.08	0.12
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the twin crisis dummy β_C obtained from the linear probability model. The regression is equation 4.1 in the text. The sample contains transactions involving both foreign and domestic acquirers. The dates for the twin crises are from Laeven and Valencia (2010). The twin crisis dummy variable is computed by multiplying the banking crisis dummy variable by the Laeven and Valencia currency crisis dummy variable. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A8: Test of Proposition 2: Twin crisis dummy

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.01	-0.04	-0.03	0.05
	(0.04)	(0.05)	(0.06)	(0.06)
R^2	0.12	0.11	0.12	0.11
No. Obs	9,192	5,103	4,370	4,089
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of Non-Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.06	-0.22**	-0.24***	0.05
	(0.09)	(0.09)	(0.08)	(0.09)
R^2	0.05	0.06	0.06	0.03
No. Obs	2,606	1,732	1,504	874
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the twin crisis dummy β_C obtained from the linear probability model. The regression is Equation 4.1 in the text. The sample contains only foreign transactions. The dates for the twin crises are from Laeven and Valencia (2010). The twin crisis dummy variable is computed by multiplying the banking crisis dummy variable by the Laeven and Valencia currency crisis dummy variable. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. In the first panel, the standard errors are clustered two-way at the level of country×target-industry and month and are reported in parentheses. In the second panel, they are clustered at the level of the country and month, as described in the text, and are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects, the country fixed effects, and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A9: Test of Proposition 3: Twin crisis dummy

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.01	0.01	0.01	-0.05
	(0.03)	(0.04)	(0.04)	(0.03)
R^2	0.12	0.10	0.10	0.09
No. Obs	9,192	5,103	4,370	4,089
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.04	-0.12*	-0.12*	-0.01
	(0.05)	(0.07)	(0.07)	(0.07)
R^2	0.17	0.15	0.18	0.12
No. Obs	2,606	1,732	1,504	874
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from a regression with the fraction acquired as the dependent variable. The regression is Equation 4.2 in the text. The sample contains only foreign transactions. The dates for the twin crises are from Laeven and Valencia (2010). The twin crisis dummy variable is computed by multiplying the banking crisis dummy variable by the Laeven and Valencia currency crisis dummy variable. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A10: Test of Proposition 4: Twin crisis dummy

	Foreign Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.21	-0.40	-0.56*	0.37
	(0.27)	(0.33)	(0.30)	(0.46)
No. Obs	6,514	3,317	2,933	3,197
Log L	$-1,772.2$	-806.9	-663.7	-962.7
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes
	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.44	-0.46	-0.68**	-0.06
	(0.32)	(0.37)	(0.33)	(0.70)
$\hat{\beta}_{NS}$	0.29**	0.44**	0.33	0.13
	(0.14)	(0.18)	(0.23)	(0.20)
$\hat{\beta}_{C,NS}$	0.69	0.33	0.52	0.93
	(0.54)	(0.76)	(0.79)	(0.81)
$H_0 : \beta_C + \beta_{C,NS} = 0$	0.27	-0.13	-0.17	0.76*
No. Obs	6,514	3,317	2,933	3,197
Log L	-1,766.5	-802.0	-661.1	-961.3
Macroeconomic Controls	Yes	Yes	Yes	Yes
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficients associated with the twin crisis dummy β_C obtained from the Cox regression model. The regression is Equation 4.5 in the text. It is based on the sample of foreign acquisitions in which post-acquisition stake is at least 50%. The dates for the twin crises are from Laeven and Valencia (2010). The twin crisis dummy variable is computed by multiplying the banking crisis dummy variable by the Laeven and Valencia currency crisis dummy variable. Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. The coefficient estimates for the macroeconomic controls lagged four quarters are omitted from the table to conserve space.

Table A11: Test of Proposition 1: No Macroeconomic Controls

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.09***	0.11***	0.13***	0.06**
	(0.02)	(0.03)	(0.04)	(0.02)
R^2	0.15	0.12	0.12	0.12
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	No	No	No	No
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.03**	0.02*	0.03**	0.04**
	(0.01)	(0.01)	(0.01)	(0.02)
R^2	0.09	0.07	0.08	0.12
No. Obs	29,728	20,410	17,524	9,318
Macroeconomic Controls	No	No	No	No
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from the linear probability model. The regression is equation 4.1 in the text, but without the macroeconomic controls. The sample contains transactions involving both foreign and domestic acquirers. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects are omitted from the table to conserve space.

Table A12: Test of Proposition 2: No Macroeconomic Controls

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.03	-0.03	-0.02
	(0.02)	(0.03)	(0.03)	(0.03)
R^2	0.12	0.11	0.12	0.11
No. Obs	9,192	5,103	4,370	4,089
Macroeconomic Controls	No	No	No	No
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of Non-Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.03	-0.03	-0.01
	(0.03)	(0.05)	(0.04)	(0.06)
R^2	0.05	0.06	0.05	0.02
No. Obs	2,606	1,732	1,504	874
Macroeconomic Controls	No	No	No	No
Country Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from the linear probability model. The regression is Equation 4.1 in the text, but without the macroeconomic controls. The sample contains only foreign transactions. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. In the first panel, the standard errors are clustered two-way at the level of country×target-industry and month and are reported in parentheses. In the second panel, they are clustered at the level of the country and month, as described in the text, and are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects and the country fixed effects are omitted from the table to conserve space.

Table A13: Test of Proposition 3: No Macroeconomic Controls

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.01	-0.02	-0.03
	(0.01)	(0.02)	(0.02)	(0.02)
R^2	0.12	0.09	0.09	0.09
No. Obs	9,192	5,103	4,370	4,089
Macroeconomic Controls	No	No	No	No
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.02	-0.02	-0.04	-0.02
	(0.03)	(0.05)	(0.06)	(0.04)
R^2	0.16	0.15	0.17	0.11
No. Obs	2,606	1,732	1,504	874
Macroeconomic Controls	No	No	No	No
Country×Target-Industry Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficient associated with the banking crisis dummy β_C obtained from a regression with the fraction acquired as the dependent variable. The regression is Equation 4.2 in the text, but without the macroeconomic controls. The sample contains only foreign transactions. The dates for the domestic banking crises are from Laeven and Valencia (2010). ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Standard errors, clustered two-way at the level of country×target-industry and month, are reported in parentheses. The coefficient estimates for the country×target-industry fixed effects are omitted from the table to conserve space.

Table A14: Test of Proposition 4: No Macroeconomic Controls

	Foreign Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	-0.06	-0.15	-0.37*	0.04
	(0.13)	(0.18)	(0.20)	(0.20)
No. Obs	6,514	3,317	2,933	3,197
Log L	$-1,776.9$	-810.7	-668.1	-965.9
Macroeconomic Controls	No	No	No	No
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_C$	0.05	0.04	-0.24	0.07
	(0.16)	(0.21)	(0.24)	(0.22)
$\hat{\beta}_{NS}$	0.36***	0.54***	0.44*	0.17
	(0.14)	(0.18)	(0.23)	(0.20)
$\hat{\beta}_{C,NS}$	-0.30	-0.49	-0.35	-0.09
	(0.30)	(0.44)	(0.47)	(0.38)
$H_0 : \beta_C + \beta_{C,NS} = 0$	-0.25	-0.45	-0.59	-0.02
No. Obs	6,514	3,317	2,933	3,197
Log L	-1,771.8	-804.9	-665.1	-965.4
Macroeconomic Controls	No	No	No	No
Country×Target-Industry Stratification	Yes	Yes	Yes	Yes

Notes: The table reports the point estimates of the coefficients associated with the banking crisis dummy β_C obtained from the Cox regression model. The regression is Equation 4.5 in the text, but without the macroeconomic controls. It is based on the sample of foreign acquisitions in which post-acquisition stake is at least 50%. The dates for the domestic banking crises are from Laeven and Valencia (2010). Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table A15: Test of Proposition 1: Macroeconomic Control Coefficients

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	-0.14***	-0.21***	-0.14***	0.15*
	(0.04)	(0.04)	(0.05)	(0.08)
$\hat{\beta}_{\%\Delta GDP}$	0.72	1.92	0.10	0.72
	(1.35)	(1.42)	(1.79)	(2.28)
$\hat{\beta}_{depreciation}$	-0.28	0.58	0.26	0.03
	(0.24)	(0.64)	(0.63)	(0.23)
$\hat{\beta}_{loans}$	0.09*	0.19***	0.22***	-0.12**
	(0.05)	(0.03)	(0.03)	(0.05)
	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	-0.03	-0.03	-0.01	0.00
	(0.02)	(0.02)	(0.02)	(0.03)
$\hat{\beta}_{\%\Delta GDP}$	0.70	-0.01	-0.98	2.61**
	(0.61)	(0.76)	(0.87)	(1.14)
$\hat{\beta}_{depreciation}$	0.09	-0.31	-0.32	0.16
	(0.10)	(0.47)	(0.49)	(0.11)
$\hat{\beta}_{loans}$	0.03	0.05**	0.05**	-0.01
	(0.02)	(0.02)	(0.02)	(0.03)

Notes: The table reports the point estimates of the coefficients associated with the macroeconomic controls lagged four quarters of the regression described in the notes of Table 8. Real GDP per capita is expressed in logs. In the regressions, the estimated coefficients associated with real GDP growth and the change in the nominal exchange rate are expressed in percent. In the table, they are multiplied by 1,000 for readability.

Table A16: Test of Proposition 2: Macroeconomic Control Coefficients

	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	-0.01	-0.03	-0.03	0.07
	(0.04)	(0.05)	(0.06)	(0.08)
$\hat{\beta}_{\%\Delta GDP}$	-1.13	0.81	-0.80	-3.02
	(1.80)	(2.61)	(3.02)	(2.25)
$\hat{\beta}_{depreciation}$	-0.02	-0.91	-0.94	0.09
	(0.17)	(0.81)	(0.84)	(0.21)
$\hat{\beta}_{loans}$	-0.02	-0.03	-0.04	0.04
	(0.02)	(0.02)	(0.02)	(0.05)
	Foreign Financial Acquisitions of Non-Financial Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	-0.08	-0.09	-0.01	-0.05
	(0.09)	(0.10)	(0.09)	(0.27)
$\hat{\beta}_{\%\Delta GDP}$	-1.95	1.48	-2.37	-8.13*
	(2.99)	(4.04)	(2.25)	(4.28)
$\hat{\beta}_{depreciation}$	1.24***	2.21	2.53*	1.10
	(0.45)	(1.42)	(1.53)	(0.91)
$\hat{\beta}_{loans}$	-0.07	-0.08**	-0.12***	0.07
	(0.06)	(0.04)	(0.02)	(0.19)

Notes: The table reports the point estimates of the coefficients associated with the macroeconomic controls lagged four quarters of the regression described in the notes of Table 10. Real GDP per capita is expressed in logs. In the regressions, the estimated coefficients associated with real GDP growth and the change in the nominal exchange rate are expressed in percent. In the table, they are multiplied by 1,000 for readability.

Table A17: Test of Proposition 3: Macroeconomic Control Coefficients

	Foreign Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	0.14***	0.15***	0.14***	0.07
	(0.03)	(0.04)	(0.04)	(0.06)
$\hat{\beta}_{\%\Delta GDP}$	0.88	0.35	2.34	2.38
	(1.49)	(1.85)	(2.22)	(2.18)
$\hat{\beta}_{depreciation}$	0.04	1.06	0.60	-0.06
	(0.14)	(0.70)	(0.72)	(0.17)
$\hat{\beta}_{loans}$	0.05	0.10***	0.12***	-0.10*
	(0.03)	(0.03)	(0.03)	(0.06)
	Foreign Financial Acquisitions of All Targets			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	0.09*	0.09	0.12	0.11
	(0.05)	(0.06)	(0.09)	(0.08)
$\hat{\beta}_{\%\Delta GDP}$	0.22	-5.59	-4.67	7.13
	(3.49)	(3.82)	(4.19)	(4.65)
$\hat{\beta}_{depreciation}$	0.53	2.37*	2.30	0.35
	(0.90)	(1.41)	(1.51)	(1.09)
$\hat{\beta}_{loans}$	0.07	0.02	0.05	0.12
	(0.05)	(0.05)	(0.06)	(0.07)

Notes: The table reports the point estimates of the coefficients associated with the macroeconomic controls lagged four quarters of the regression described in the notes of Table 12. Real GDP per capita is expressed in logs. In the regressions, the estimated coefficients associated with real GDP growth and the change in the nominal exchange rate are expressed in percent. In the table, they are multiplied by 1,000 for readability.

Table A18: Test of Proposition 4: Macroeconomic Control Coefficients

	Foreign Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	-0.01	0.40	0.05	-0.52
	(0.41)	(0.64)	(0.64)	(0.45)
$\hat{\beta}_{\%\Delta GDP}$	-32.20**	-35.09*	-29.87	-30.12
	(13.96)	(20.83)	(22.62)	(18.39)
$\hat{\beta}_{depreciation}$	0.04	-8.20	-11.34**	-0.11
	(1.16)	(5.80)	(5.62)	(0.99)
$\hat{\beta}_{loans}$	-0.75**	-0.66*	-0.95***	-1.10
	(0.33)	(0.37)	(0.35)	(0.77)
	Foreign Non-Synergistic Acquisitions			
	Full	Asia	Post-1997 Asia	Non-Asia
$\hat{\beta}_{GDPpercapita}$	-0.01	0.42	0.04	-0.52
	(0.41)	(0.64)	(0.65)	(0.44)
$\hat{\beta}_{\%\Delta GDP}$	-33.13**	-36.27*	-29.81	-30.37*
	(14.03)	(20.92)	(22.67)	(18.35)
$\hat{\beta}_{depreciation}$	-0.02	-8.18	-11.34**	-0.13
	(1.19)	(5.89)	(5.77)	(1.01)
$\hat{\beta}_{loans}$	-0.75**	-0.66*	-0.94***	-1.12
	(0.33)	(0.37)	(0.35)	(0.79)

Notes: The table reports the point estimates of the coefficients associated with the macroeconomic controls lagged four quarters of the regression described in the notes of Table 13. Real GDP per capita is expressed in logs. In the regressions, the estimated coefficients associated with real GDP growth and the change in the nominal exchange rate are expressed in percent. In the table, they are multiplied by 1,000 for readability.