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CROSS-BORDER SPILLOVERS:  
HOW US FINANCIAL CONDITIONS AFFECT M&AS AROUND THE WORLD

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**ABSTRACT**

We find that financial conditions in the core have significant spillover effects on cross-border mergers and acquisitions (M&As). On average, a 1 percentage point easing of the IMF US Financial Conditions Index is associated with approximately a 10% higher volume of cross-border M&As. The spillovers are stronger for countries with more liabilities denominated in foreign currency (or in US dollars). We find that the spillovers are driven by changes in US financial conditions, rather than changes in Euro Area conditions. Deals that happen when financial conditions in the US are tighter (and therefore acquisitions fewer) add more value for the acquirers, as reflected in higher acquirer excess stock returns around the announcement.

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# 1 Introduction

How do monetary conditions set in core reserve currency countries spill over to the rest of the world? A growing literature examines various facets of this question (see, for example, Ammer et al., 2016, Jiang and Xu, 2019, Kalemli-Özcan, 2019, and Rey, 2013). Much of this literature focuses on cross-border lending specifically, and on capital flows more generally. In this paper, we explore another facet of spillovers from monetary policy in core countries, its effect on cross-border M&As around the world.

Why does this matter? First, a corporate acquisition is a way to reallocate ownership and control over corporate assets, which is clearly an important spillover effect. Moreover, acquisitions are usually accompanied by a significant increase in capital raising by the acquirer (unless the acquirer pays in its own stock) to finance the bid. The resultant change in capital structure, including leveraging, is also a spillover effect, which can have considerable consequences if conditions turn. Finally, the change of ownership and control may or may not be efficient. This may not be easily reversed, magnifying its longer term consequences.

The cyclical aspects of asset reallocations have been studied within countries. In the United States, Maksimovic and Phillips, 2001 show that the fraction of plants that change hands per year is higher in expansion years than in recession years, consistent with easier access to financing facilitating asset reallocation during expansions. Similarly, Eisfeldt and Rampini, 2006 show in the United States that capital reallocation and assets sales are procyclical. However, they find that the benefits to reallocation in terms of potential productivity gains are countercyclical.

Turning to cross-border acquisitions, there are multiple reasons why cross-border acquisitions might take place between a pair of countries (see Erel et al., 2012 for a comprehensive analysis; and Erel et al., 2022 for a survey of literature on cross-border M&As). Many of these reasons do not fluctuate significantly over time. For instance, some countries may simply prohibit acquisitions while others may welcome them, some country pairs may be geographically, culturally, linguistically, or politically close while others may not (unfortunately, neighbors can be deadly enemies), some countries may be dominated by state sector enterprises, others not, some may have prohibitive taxes or impediments to greenfield investment, others not. . . . Disentangling these effects, both on the organic growth versus acquisition decision, as well as how that decision varies across country pairs, is a hugely ambitious task. Fortunately, our focus is narrower. We intend to examine how acquisition activity between countries fluctuates over time, and to what extent it can be deemed a spillover from core country financial conditions. Because we examine deviations in acquisition activity over time for specific country pairs, we avoid having to explain the level of activity between them.

There are a number of reasons why M&As activity can vary with global financial conditions and exchange rates. The traditional view is that changes in real effective exchange rates should affect the competitiveness of production. It may be cheaper to produce in a country when its real effective exchange rate is weaker or more depreciated. So *ceteris paribus*, a sustained appreciation in a country's real effective exchange rate should make it more likely for acquirers to emanate from there (they look for cheaper locales in which to produce) and less likely to have targets (it is a more expensive locale for production).

Yet, more than changes in real exchange rates, it may be changes in local financing conditions, induced by changes in financing conditions at the core but also by nominal exchange rate changes, that affect cross border M&A activity. Importantly, our experimental design allows for the possibility of differential changes in access to finance in the acquirer's country and in the target country, even if the common impulse for change, the financial conditions at the core, is similar. For instance, easier access to financing in the acquirer country should make acquisitions, both domestic and cross-border, easier. Similarly, easier financing in the target country should lead to more domestic acquisitions, increasing the liquidity of assets, and easing cross-border acquisitions also.

Changes in nominal exchange rates, induced by changes in policy at the core, can also have differential effects through the foreign exchange liabilities of corporations. Diamond et al., 2020 argue that asset churn stemming from domestic exchange rate appreciation is especially pronounced in countries where firms have large net foreign exchange liabilities. In their model, an appreciation of the domestic exchange rate increases the net worth of industry insiders who have borrowed in foreign currency, allowing them to make bids for other players in the industry and for firms elsewhere. Spillovers from easier financial conditions at the core are particularly important, since the persistence of such easy financial conditions (often driven by the monetary stance at the core) could lead to a durable domestic exchange rate appreciation, and thus a durable increase in domestic industry net worth and financing capacity. Clearly, this would increase the capacity of firms in that country to acquire firms in other countries.

In countries with potential targets, a rise in the nominal exchange rate in the presence of large domestic corporate foreign exchange liabilities raises the net worth and price of those targets thus reducing the probability of acquisitions. However, as discussed earlier, easier domestic financing conditions associated with the stronger exchange rate could also increase domestic asset trading, enhancing liquidity and the availability of loans against target assets. This would increase the likelihood of more firms in that country being acquired. Given these effects going in opposite directions, the impact of domestic exchange rate appreciation driven by easier financial conditions at the core on the likelihood of firms

in a country becoming targets is more ambiguous.

Diamond et al., 2020 argue that the additional borrowing (to finance acquisitions) during the period of easy financial conditions also makes M&A activity more pro-cyclical. Since well-financed industry insiders tend to neglect to maintain other sources of financial access in liquid times (for instance, by neglecting corporate governance), financing becomes disproportionately asset based. So a tightening in core financial conditions would reduce industry net worth, access to finance, as well as merger activity significantly (see also the evidence in Hofmann et al., 2019).

What about efficiency? To the extent that corporate acquisitions are efficient reallocations of control, a reduction in the financial frictions preventing acquisitions should improve efficiency. However, to the extent that acquisitions are destructive of value in general and reflect agency problems such as empire building tendencies in the acquirer, the reduction in financial frictions that prompt acquisitions could generate an excessive number of value-reducing acquisitions.

We take these theories to the data. We find that financial conditions in the core have significant spillover effects on cross-border M&As. On average, a 100 basis point (1 percentage point) tightening of the IMF US Financial Conditions Index (that is, an increase in the index) is associated with approximately a 10% lower value of M&As. The spillovers are stronger for countries with a higher stock of liabilities denominated in foreign currency, or in US dollars. For an acquirer economy in the tenth percentile of net FX liabilities (e.g. Colombia or Japan), a 100 basis point easing of FCI would be associated with a 1.3% increase in deals compared to over 11 times that increase for a country in the 90th percentile (e.g. Netherlands or United Kingdom). The magnitude of the difference is even bigger when we consider US\$ liabilities. We establish that US enjoys a kind of “exorbitant privilege” from perspective of transmission of global financial conditions too – we find that spillovers to M&As are driven by changes in US financial conditions, rather than changes in conditions in the Euro area.

Importantly, we find a similar, though not as robust, effect for of US FCI for target countries, suggesting that the additional liquidity in target countries trumps the higher prices of targets in making them more attractive to acquire.

Finally, we explore the effects of these deals on corporate values by looking at stock returns around acquisitions. There is robust evidence for a tightening of US financial conditions to be associated with higher excess returns for the acquirer around the months of the acquisitions. In other words, acquisitions that happen around tighter financial conditions globally create greater value; while those that coincide with loose financial conditions presage weaker performance, at least as suggested by the stock market reactions. Indeed, a number of acquisitions that reduce the value of the acquirer at the time

of announcement take place at a time of loosening financing conditions, with the mean excess returns for acquirers at such times being negative.

Our empirical methodology has the following features: (i) M&As take place at the firm level while monetary policies are adopted at the core-country level. Therefore, our estimates are less susceptible to reverse causality concerns since deals that take place at a highly disaggregated level, are unlikely to affect a macroeconomic policy variable like financial conditions or exchange rate, particularly when the latter is the financial condition of another country, the United States, and (ii) bilateral country-pair fixed effects are included. While these features of the methodology partly help mitigate concerns about omitted variables, we recognize that even after conditioning on (i) and (ii), monetary policies in the core may operate through other factors than firm financing conditions. Therefore, our methodology takes an additional step and examines the differences in spillovers across countries with different degrees of FX denominated debt, which also allows us to control for all observable and unobservable bilateral country-pair and time varying factors.

Our paper contributes to a growing literature on estimating spillovers. Ours is not the first paper to evaluate the effect of exchange rates on acquisition activity. Pelli, 2018 finds that a sudden, sizeable, and persistent appreciation of the local currency is associated with reduced cross-border M&A activity targeting domestic firms relative to comparable countries, especially for high-tech firms. However, Fransson, 2010 finds mixed evidence of any relationship between M&A inflow and the exchange rate; the Euro area and the UK show evidence of increased M&A inflows when the currency is weak, while there are some signs of the opposite relationship for the US and Sweden. Finally, Georgopoulos, 2008 use bilateral Canadian-US industry level count data on cross-border M&As (M&As), and finds evidence that a real dollar depreciation of the home currency leads to an increase in the probability of acquisitions by foreign firms, but only in high R&D sectors.<sup>1</sup> Unlike these papers, our focus is not on the direct effect of exchange rates on acquisition activity, but the effect as mediated through greater ease of financing.

Our paper is most closely related to Erel et al., 2012. While their focus is on the more persistent determinants of cross-border M&A activity between country pairs (such as a common language or physical proximity) that are absorbed by our fixed effects, they also examine the effect of relative changes in valuation through exchange rate and stock market appreciation. They find an increase in acquisitions when the acquirer country's exchange rate and stock market appreciate relative to the target country. In contrast to

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<sup>1</sup>Other related papers on the exchange rate spillovers are Ammer et al., 2016 and Tietz, 2020. The latter estimates the real effects of US monetary policy on investment in 36 countries, and establishes that exchange rate regimes play an important role, with reductions in business investment after US monetary tightening being the largest in countries with pegged or managed exchange rates.

their focus, ours is on the effect of a common source of spillovers, the policy settings in the core country. We find that an easing in core country conditions, and a consequent appreciation in both the acquirer and the target nominal exchange rate, tends to enhance M&A activity, especially in the presence of higher foreign exchange borrowing in either country, with a more robust effect found for acquirers.

The rest of the paper is organized as follows. Section 2 describes the data on M&As, financial conditions indices, exchange rates, and the liabilities of a countries denominated in foreign currency. Section 3 presents the empirical methodology and our findings. Section 4 concludes.

## 2 Data

### 2.1 M&As

The merger and acquisitions data are taken from Security Data Corporation’s (SDC) Merger and Corporate Transactions. The sample used in our analysis comprises completed deals during the period 2000-2017. Following Erel et al., 2012, we exclude LBOs, spin offs, recapitalizations, self-tender offers, exchange offers, repurchases, partial equity stake purchases, acquisitions of remaining interest, and privatizations. We have a sample of 523,818 deals in 180 advanced, developing and emerging countries, with a total transaction value of US\$ 36 trillion of which 43% are cross border, with a transaction value of US\$ 12 trillion. This paper focuses on cross-border mergers for reasons specified above. At the same time, there is information in domestic deals about the desirability of acquisitions, which we will use in our analysis. The average cross-border deal size is US \$227 million, but the distribution is heavily skewed to the right, with mean deal value significantly higher than the median value. The sample of countries with data available on both cross-border deals and foreign currency or US dollar liabilities is smaller with 50 countries.<sup>2</sup>

As noted in Erel et al., 2012, there are a substantial number of deal-level observations in the SDC data for which the value of the deal is missing (62% of our sample, and these are fairly dispersed across income groups of targets and acquirers). These missing values are likely to be associated with smaller, private firms. We assume these to take a value of zero. We then collapse the raw deal data by acquirer country, target country, and year so

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<sup>2</sup>We filter the SDC data based on the variable `MENUMAIN=1` or `2`, which indicates all deals where the “acquirer is acquiring an interest of 50% or over in a target, raising its interest from below 50% to above 50%, or acquiring the remaining interest it does not already own”. Based on the variable “FORM”, our final data sample cover (i) Acquisition by shareholders, defined as “deal in which 100% of a company is spun off or split off”, (ii) Merger, where “a combination of business takes place or 100% of the stock of a public or private company is acquired”, or (iii) Acquisition of majority interest, where “the acquirer must have held less than 50% and be seeking to acquire 50% or more, but less than 100% of the target company’s stock”.

that we have two observations per country pair A B for each year, one for the aggregate value of acquisitions from country A with targets from country B in that year, and the other for the aggregate value of acquisitions from country B with targets in country A.

Missing values have to be dealt with carefully. If there are no deals with positive deal value throughout the sample period from country A to country B, we will assume no observations for the pair – for we cannot tell if data were simply not available, or that there were no deals. If a bilateral country-pair did not report a deal in the years between their first and their last reported deals with a non-missing positive value, we know that the pair were reported at some time, so we can assume there were no, or very small, deals. In this case, we will assume the aggregate value of deals in each of those years to be zero (out of a total of 1326 bilateral country pairs included in our main regression, deals were reported for some but not all years for 182 pairs). In sum, if Brazilian firms have no reported acquisitions of US firms in selected years, then the aggregate value of acquisitions from Brazil with targets in the US would be zero in those years, provided they are non-zero in some years before and after. Else, they would be coded as missing.

To check the robustness of our assumptions on missing deal values and country pairs, we re-estimate our key regressions in two additional ways using (i) a smaller sample where we set the value of all deals with missing deal values to be missing and (ii) a larger sample where we count deals rather than sum deal values by acquirer country, target country, and year.

In Figure 1, we plot the dollar value of deals over our sample period. Both cross-border and domestic deals exhibit similar patterns. They increased since 2002 until before the Global Financial Crisis (GFC) and declined sharply during GFC. Cross-border mergers remained subdued till 2013 and started rising until 2015, declining thereafter. Domestic deals follow a similar pattern. As a fraction of the total value of worldwide mergers, cross-border mergers amounted to 34% ( $=860/(860+1690)$ ) at the end of our sample period. Figure 2 indicates that the aggregate value of cross border deals is highest when both the acquirer and the target are in advanced economies, though the aggregate size of deals from emerging economies to other emerging economies is increasing. In addition, largest aggregate value of deals occur when both the acquirer and the target are public firms, and the smallest aggregate value is when both are private (Figure 3).

## 2.2 Foreign exchange liabilities

Ideally, we would like a measure of the foreign exchange liabilities of specific corporations, failing which we would like the liabilities of a country's corporate sector. The most reliable data we have, however, is from the IMF, which reports a country's stock of net foreign exchange liabilities, from which we can compute the liabilities as a fraction of domestic



GDP. The IMF measure is broad and is based on the country’s international investment position and includes the country’s overall liabilities. Specifically, the measure is taken from Bénétrix et al., 2020 who compile a dataset on the currency composition of the international investment position, building on earlier estimates by Lane and Shambaugh, 2010, and Bénétrix et al., 2015.

For robustness, we consider two alternative measures of foreign exchange liabilities. The first is from the Bank for International Settlements (BIS) local banking statistics data. To calculate the liabilities of each country, we add up the claims that banks in other countries report having on the country in question. We sum up claims denominated in Euro, USD, Yen, Swiss Franc, and Pounds to arrive at the total FX claims. We do a similar exercise to arrive at US\$ liabilities. Both FX and US\$ liabilities are normalized by target or acquirer country GDP as relevant. Although the BIS measure is narrower compared to that from the IMF (for instance, it would not include non-bank claims on the country), the correlation between the two measures is high, at 0.9.

The second measure uses micro data from the SDC. The SDC measure is constructed using its Platinum Loans and Bonds data. The database records corporate bonds at issuance and new corporate syndicated loans at origin. The dataset includes all major characteristics of the bonds and loans, including currency of denomination and sector of the issuer (financial vs non-financial). For each country and year, we aggregate the micro data to construct a flow variable measuring the total value of FX and US\$ bond issuances and new syndicated loan originations by non-financial corporates. We also consider an alternative measure, the average of the flows of the last three reported periods, all in percent of GDP, to get a proxy for the pre-determined stock of foreign liabilities, which is more exogenous to current financing conditions.

### **2.3 Financial condition indices and exchange rates**

Our primary measure of US financial conditions is the Financial Conditions Index in the United States, obtained from the IMF’s GFSR database. The US FCI is a composite index, with time varying weights on real short-term rates, term spreads, interbank spreads, sovereign and corporate spreads on domestic and external debt, equity market price-to-book ratios, equity market volatility, house prices, and exchange rates. More specifically, variables in the IMF FCI include 3-month T-bill yield minus CPI, Interbank rate (Libor) minus T-bill yield, 5-year government bond yield minus T-bill yield, corporate local currency spread (ICE OAS), corporate dollar debt spread (CEMBI spread), equity prices (MSCI P/B), equity vol (VIX/V2X/VNKY) and real house prices (BIS house price increases year on year minus CPI increase year on year). The time varying weights are calculated based on a dynamic factor model. Higher values of FCI indicate tighter financial

conditions.

For robustness, we also use a second measure of financial conditions, which is narrower and is based on changes in monetary policies in the US, and taken from Iacoviello and Navarro, 2019, who identify U.S. monetary shocks by regressing the federal funds rate on a set of controls and use the residuals as the identified shocks.<sup>3</sup> The correlation between US FCI and the US monetary policy residual measure is positive, at 0.26, though small, over our sample period. Arguably, slower moving changes in policy (and not just the unpredictable changes) are what affect a more deliberate decision such as a merger. Those slower moving changes are captured by changes in the level of the US Financial Conditions Index, which is the primary measure we use for the US to reflect financial conditions at the core.

We report summary statistics of all the variables used in the analysis in Table 1 (all variables are winsorized at the 5 and 95 percent level). In Figure 4, we plot the US FCI and the average annual residual from a regression of aggregate deal value on country indicators over time. The negative time series relationship between the two is clearly visible.

### 3 Empirical Analysis

#### 3.1 US Financial Conditions and Cross-Border M&A activity

To analyze how US financial conditions affect cross border deals, we use the following specification:

$$y_{\alpha,\tau,t} = s_{\alpha} * v_{\tau} + \gamma * FCI_{US,t} + \epsilon_{\alpha,\tau,t} \quad (1)$$

where  $y_{\alpha,\tau,t}$  is the total dollar value of deals between acquirer country  $\alpha$ , target country  $\tau$  and in year  $t$  (in logs),  $FCI_{US,t}$  is the FCI in the United States in year  $t$ .

All specifications control for bilateral country pair fixed effects,  $s_{\alpha} * v_{\tau}$ , which capture all time-invariant cross-sectional determinants of cross-border mergers considered in the literature such as per capita income, GDP growth, local monetary stance (see, for example, Erel et al., 2012).

We report the regression estimates in Column 1 in Table 2. The total number of observations in Column 1 is 48,316 which is based on an unbalanced sample of 180 target and acquirer countries across 18 years. Based on the estimated coefficient in Column 1,

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<sup>3</sup>The measure reflects shocks identified by the residual in a Taylor rule regression and is purged of current macroeconomic conditions in the US. Since 2009, the Taylor rule regression uses the Wu-Xia shadow rate to account for the zero lower bound and for the stimulus to the economy provided by the unconventional monetary policy actions that followed the Great Recession.

a one percentage point reduction (i.e., easing) in the US FCI is associated with a 9.4 percent higher value of deals. The magnitude is therefore large.

For robustness, we include the US monetary policy shocks taken from Iacoviello and Navarro, 2019 in Column 2. To isolate the spillovers to the rest of the world, we exclude in Columns 3 and 4 the deals which include the US as an acquirer or a target (8% of observations). We find similar estimated coefficients.

### 3.2 Exchange rate and Cross-Border M&A activity

One channel through which easier US financial conditions are transmitted is through a depreciating dollar exchange rate (and an appreciating domestic exchange rate). So next, instead of the US FCI, we include the nominal effective exchange rate (NEER) in the US (replacing  $FCI_{US,t}$  in Equation 1 by  $NEER_{US,t}$ ). Higher values of NEER indicate an appreciation of the exchange rate.

We report results in Table 3. The sign of the estimated coefficient on  $NEER_{US,t}$  is negative in Column 1, indicating that a tightening of US financial conditions captured in a stronger US exchange rate (increase in US NEER) is associated with a lower value of deals globally. Of course, the effect on deals between specific country pairs should depend on how the domestic exchange rate moves as US financial conditions move. To analyze the effects of local exchange rate movements in the acquirer and target, we use the following specification:

$$y_{\alpha,\tau,t} = s_{\alpha} * v_{\tau} + \pi_t + \gamma * NEER_{\alpha,t} + \delta * NEER_{\tau,t} + \epsilon_{\alpha,\tau,t} \quad (2)$$

where  $\pi_t$  denotes year fixed effects.  $NEER_{\alpha,t}$  and  $NEER_{\tau,t}$  denote NEER in acquirer and target country, respectively. The advantage of equation 2 is that by including  $\pi_t$  it allows us to control for global waves in M&A activity, as well as any global shocks, including the common shock to US financial conditions, allowing its influence through local currency appreciation (and local financial conditions) to be highlighted.

Columns 2 (without year indicators) and 3 (with year indicators) suggest a loosening of global financial conditions, as reflected in a weaker US NEER and therefore stronger local currency exchange rates (higher NEER in acquirer and target) is associated with a higher value of deals (and hence positive coefficients on acquirer and target NEERs). Columns 4 and 5 build on Column 2, and include US FCI, US NEER respectively, while dropping year effects. In column 6, we reintroduce time fixed effect, as also the local currency exchange rate vis a vis the dollar. The estimated coefficients are remarkably stable, supporting the finding that a tightening of US financial conditions, a stronger US NEER, or weaker exchange rates in acquirer and target countries are all associated with

lower M&As. In general, the size of the coefficient estimate of the NEER appreciation in acquirer countries is larger and generally of higher statistical significance than the NEER appreciation in target countries (two and a half times based on Column 2 in Table 3). Of course, this evidence is only suggestive at this point of a financing channel of spillovers causing a change in cross-border acquisitions.

In Columns 7-12, we repeat the analysis, excluding M&As involving the US as an acquirer or a target country. Interestingly, the US NEER can even explain the variation in mergers over time for other country pairs. Once we include the NEERs of the target and acquirer countries (column 10), the US NEER remains strongly significant in the expected direction. Put differently, US financial conditions matter, even conditioning on country specific valuations.

In the Online Appendix Table 1, we allow the coefficients on target and acquirer exchange rates to vary between targets and acquirers in advanced economies and emerging markets and developing countries (henceforth EMs), and by pre and post GFC. The estimated coefficients on the target NEER is stronger when the target is an EM whereas, the coefficient on acquirer NEER is stronger when the acquirer is an EM, relative to when the target or the acquirer is an AE. In other words, the effect of country exchange rate movements on M&A activity appears to be stronger for emerging markets, which is plausible if we think financial development is lower in such countries, so the boost to access to finance from changes in financial conditions is higher. The magnitude of the estimated effects is not statistically different between pre- and post GFC.

### **3.3 Foreign Exchange Liabilities and Cross-Border M&A activity**

Why do exchange rates matter? One possibility is that exchange rate movements enhance cross-border activity because they enhance equity valuations, giving acquirers more ability to raise capital in their domestic markets, while increasing liquidity and asset churn in the acquirer and target market and thereby further enhancing the acquirer's ability to borrow against own, and target, assets. One way to get at this channel is to look for a variable that would modify the extent to which equity values are sensitive to exchange rate movements and see if that variable is correlated with M&A activity. One such variable is the amount of net foreign exchange liability corporations have. Diamond et al., 2020, for example, suggest an appreciation in the local currency would lead to more merger activity, especially in a country with more net foreign exchange liabilities. We start with data on the nation's net foreign exchange liabilities, which we will use as a proxy for corporate foreign exchange liabilities.

We then estimate the following specification:

$$y_{\alpha,\tau,t} = s_{\alpha} * v_{\tau} + \pi_t + \gamma * FCI_{US,t} * NFXL_{\alpha,t-1} + \delta * FCI_{US,t} NFXL_{\tau,t-1} + \epsilon_{\alpha,\tau,t} \quad (3)$$

Where  $NFXL_{\alpha,t-1}$  and  $NFXL_{\tau,t-1}$  are the net foreign liabilities of the acquirer and target countries, respectively, computed as a ratio of the country’s GDP, and lagged by one year. Equation 3 is estimated without and with including year fixed effects, where the former allows for inclusion of the base effect of US financial conditions, in addition to its interaction with FX liabilities.<sup>4</sup>

Table 4 reports the estimated effects. The liabilities are interacted with the US FCI. Columns 1 (without year fixed effects) and 2 (with year fixed effects) include all FX liabilities, whereas Columns 3 and 4 include only the US\$ liabilities. The results from Column 1, Table 4, suggest that the interactions of US financial conditions with both target and acquirer FX liabilities are negative and statistically distinguishable from zero. In words, easier US financial conditions are associated with higher M&A activity in countries with high FX liabilities. The coefficient estimates are qualitatively similar when we include time fixed effects (Column 2) or we replace foreign exchange liabilities with dollar liabilities (Columns 3 and 4) or when we exclude acquisitions involving US entities (Columns 5-8).

Three points are worth noting. First, the coefficient estimate of US FCI alone is around a tenth the size of Table 2, Column 1, and statistically insignificant, suggesting much of its effects show up in the interaction variables. Second, the direct effect of the stock of FX liabilities is always positive for the acquirer, and often statistically different from zero, suggesting that acquirers are more likely to come from countries that have had past access to foreign financing. Third, the interaction effect between exchange rates and liabilities is typically stronger for the acquirer, both in magnitude and statistical significance, suggesting the possible offsetting effects of higher equity valuations in target countries and the greater liquidity and churn there from stronger financing conditions.

The magnitude of the estimated effects on the interactions between FX liabilities and core financial conditions are economically significant too. For example, based on Column 2 in Table 5, for an acquirer economy in the tenth percentile of net FX liabilities (e.g. Colombia or Japan), a 1 percentage point easing of FCI would be associated with 1.3% increase in deals compared to 11 times that increase for a country in the 90th percentile (e.g. United Kingdom or Netherlands). The differences are even bigger when we consider US\$ liabilities.

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<sup>4</sup>While financial conditions in the United States are contemporaneous in Equation (3), and target and acquirer FX liabilities are lagged by one year, the results are qualitatively similar if the US FCI is lagged by a year, and FX liabilities are lagged by 2-years, though the standard errors are higher due to smaller number of observations.

Overall, the results presented in Table 4 show the spillover of financial conditions in the US to other economies varies depending on the FX liabilities of the country, suggesting some evidence of a “net worth” channel of transmission. An easing of US financial conditions, or a depreciating US\$, is associated with relatively higher M&A activity, driven by countries with higher FX liabilities.

### 3.4 Robustness with alternative sources of data on FX liabilities

It is useful to check that the results are robust to alternative specifications of FX liabilities. Instead of using one-lag of FX liabilities, in Table 5, we use (i) an average of FX and US\$ liabilities over the entire sample period (Columns 1-2, note FX or US liabilities are time invariant in this measure), and in Columns 3-4, we repeat the specification in 1-2, but defining liabilities based on all past years since the start of the sample till the year of the observation – this would be a time varying measure. In Online Appendix Table A2, we examine a specification which emphasizes the non-linearity of liabilities – an indicator for whether the average across the sample for the country is above the cross-sectional median of the country averages. The results on the interaction estimates are robust to these alternative measures. In particular, tighter financial conditions in the United States are associated with lower merger activity in countries with higher FX liabilities, with stronger results for liabilities of the acquirer countries. These alternative proxies for liabilities suggest it is not the cyclical variation in a country’s FX liabilities that drive our results but, instead, a country’s persistent propensity to have foreign liabilities interacted with the cyclical variation in FCI that drives our results.

We can also obtain foreign liabilities from alternative sources. Table 6 estimates the spillover effects of US financial conditions, and its interactions with FX liabilities taken from two completely different sources – the BIS (Columns 1-4) and the SDC (Columns 5-8). Note that while the data from BIS refers to stocks of liabilities, that from the SDC refers to flows. While the interaction effects of US FCI with FX liabilities in the target are weaker with the BIS and SDC measures (though still negative with the latter), the main finding – a negative and statistically significant interaction effect between US FCI and FX and US\$ liabilities in the acquirer – remains robust to using two different measure of liabilities, from totally distinct sources.<sup>5</sup>

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<sup>5</sup>Finally, another concern could be that the interactions effects captured in the paper reflect the effects of interactions with other global macroeconomic variables rather than financial conditions in the United States as in our baseline specification in Table 4. For illustration (in results available from the authors), we included in Table 4, world GDP growth, and its interactions with FX and US\$ liabilities in the target and acquirer. The baseline results remain unchanged, and the estimated coefficients on interactions of FX and US\$ liabilities with world GDP growth are statistically indistinguishable from zero.

### 3.5 Are domestic acquisitions different?

As Erel et al., 2012 point out, conceptually cross-border mergers occur for the same reasons as domestic ones, but national borders can add an additional set of frictions that can impede or facilitate mergers. While Erel et al., 2012 emphasize the cross-sectional, time-invariant determinants such as cultural or geographic differences, this paper focuses on changes in financial conditions, while controlling for time-invariant cross-sectional determinants. Whether domestic acquisitions could also be driven by the same factors is ultimately an empirical question.

In this section, we evaluate whether financial conditions in the US and their interaction with FX liabilities play a significant role in determining domestic acquisitions, using the following empirical specifications.

$$y_{i,t} = \alpha_i + \pi_t + \gamma * FCI_{US,t} + \epsilon_{i,t} \quad (4)$$

$$y_{i,t} = \alpha_i + \pi_t + \gamma * FCI_{US,t} * NFXL_{i,t-1} + \epsilon_{i,t} \quad (5)$$

Where  $y_{i,t}$  denotes the total dollar value of domestic deals in country  $i$  and in year  $t$  (in logs), and  $NFXL_{i,t-1}$  denotes the net foreign exchange liabilities of country  $i$ , lagged by one year. Similar to Equation 3, Equation 5 is also estimated with and without including year fixed effects.

The results from estimating Equations 4 and 5 are reported in Tables 7 and 8 respectively. While we do find some evidence for US financial conditions and exchange rates to affect domestic deals in Table 7, the effect importantly gets outweighed by the effect of domestic financial conditions (column 4).

Columns 1-2 in Table 8 report results including interactions with total FX liabilities, while 3-4 report estimations with US\$ liabilities only. The results are consistent across specifications. While a tightening (loosening) of US financial conditions reduces (increases) domestic acquisitions, the effects do not vary significantly depending on the foreign exchange liabilities of the country. The results are similar, whether we focus on total FX or only the US\$ liabilities.

Overall, Tables 7-8 confirm our priors that the net worth channel of spillovers are more relevant for international mergers, compared with domestic ones, while domestic financial conditions play a more significant role in driving domestic mergers. It may well be that FX liabilities are concentrated in the more outward/trade focused sectors of the economy, which may explain why their effects interacted with easing financing conditions would show up in cross-border acquisitions than in domestic acquisitions.

### **3.6 Is the US special?**

While the world is becoming more multipolar, it is important to analyze whether the United States remains special among reserve currency issuers from point of view spillovers to other economies. In Table 9, we analyze the role of financial conditions in the Euro Area (EA). Columns 1 and 2 report the effects of EA FCI on cross-border deals (without, and with US FCI). Columns 3-5 present the interactions with FX liabilities. We find a significant effect of EA FCI (Column 1), and its interaction with FX liabilities, in particular, of the acquirer (Columns 3, and 4) on cross-border deals. However, when both US and EA FCI are included (column 2) or time fixed effects along with US and EA FCI interactions with FX liabilities are included (column 5), the estimated effects appear to be driven by US FCI (Column 2 and 5). Overall, there is some evidence that the exorbitant privilege of the United States carries over from the perspective of spillovers too.

### **3.7 Do domestic financial conditions matter?**

While we did not include financial conditions in the acquirer or the target in the baseline specifications, as they are likely to be endogenous, we check if the results reported so far are driven by the evolution of domestic financial conditions. Table 10 reports the results controlling for domestic financial conditions. While it does seem to be the case that movements in domestic financial conditions trump the coefficient on US FCI reported in Table 1, the interactions with FX liabilities, in particular, of the acquirer seems to be driven by movements in the US FCI. In fact, the interactions of both target and acquirer FCI with FX liabilities remain statistically indistinguishable from zero in our preferred specifications with time fixed effects in Columns 6 and 12, while the estimate of the interaction with US FCI with acquirer country FX liabilities is reliably negative.

### **3.8 Exchange rate as a mechanism**

So far in the paper we focused on movements in US financial conditions and its interactions with borrowing in foreign currency as a driver for M&As. As discussed in the introduction, the advantage of using US FCI is that our estimates are less susceptible to reverse causality concerns since deals that take place at a highly disaggregated level are unlikely to affect a macroeconomic policy variable like financial conditions of another country, the United States. Yet, to get a sense on the importance of country-specific exchange rates, in Table 11, we report our main findings with exchange rates vis a vis the dollar (with an increase in the exchange rate vis a vis the dollar implying a depreciation of the domestic currency) for the target and the acquirer.



The estimated coefficients on the interaction between FX/US\$ liabilities and domestic exchange rates of both the target and the acquirer are negative in sign, though stronger and statistically significant for the acquirer in all specifications. The results are similar when we include the US (Columns 1-4), or exclude it (Columns 5-8) from the sample. In other words, a depreciation of the domestic exchange rate vis-à-vis the US\$ (that is, a higher value of the exchange rate vis a vis the dollar) is associated with lower M&As when the country has greater FX and US\$ liabilities. This is especially the case for the country of the acquirer. Once again, the results are consistent with a net worth channel operating through the exchange rate.

### 3.9 Additional robustness tests

We conduct several other robustness checks, reported in Table 12. First, there are a substantial number of deal-level observations in the SDC data for which the value of the deal is missing. We repeat the analysis in the paper with counts of deals (rather than the value) as the dependent variable and find all results to be robust (Columns 1 and 2 in Table 12 report our key specifications).

Second, domestic and cross-border could be driven by common factors (indeed, our argument is that domestic asset churn will make cross-border acquisitions more attractive). While global time-varying factors capturing waves of both global and domestic M&As could be absorbed by time fixed effects, we explicitly include domestic deals in target and acquirer countries as additional explanatory variables in Table 12 (columns 3 and 4). While there is a strong and positive association between domestic and cross-border deals (suggestive that asset churn in both the acquirer and the target countries are important), US financial conditions and their interactions with FX liabilities continue to play a significant role in driving merger activity.

Next, rather than using the value of deals in logs as the dependent variable, we use the share of cross-border deals as a fraction of total (cross border and domestic) deal value of target in Columns 5-7, and of the acquirer in Columns 8-10). While the interactions of US FCI with target country FX and US\$ liabilities are significant in Columns 6-7, the interactions with acquirer country FX and US\$ liabilities are significant in 9-10.

### 3.10 The Stock-Price Reaction to Announcements of M&As

Ultimately, what is the value addition of deals that take place during loose or tight global financial conditions? There is a significant body of evidence on acquirers' abnormal returns for domestic as well as cross-border mergers (Erel et al., 2022). While, on average, domestic acquirers have a small negative return, domestic acquisitions of smaller and

private companies tend to be associated with positive acquirer returns. For cross-border acquisitions, there is robust evidence across studies that abnormal returns to acquirers is positive and statistically significant.<sup>6</sup>

We contribute to this literature by exploring how acquirer returns around the announcements of acquisitions vary depending on US FCI. Table 13 takes a first look at the data and reports positive and higher average abnormal returns of the acquirer during periods of tightening (after controlling for acquirer fixed effects), compared to negative and lower average returns during periods of loosening. In fact, abnormal returns are higher during periods of tightening compared to periods of loosening for the entire distribution too (e.g. even though the 25th percentile is negative, it is less negative during periods of tightening).

Table 14 reports estimates from specifications where abnormal returns around the announcement of the acquisition are regressed on US FCI at different horizons (in the month of announcement, within one and two months). We find robust evidence across specifications for a tightening of US financial conditions to be associated with higher excess returns around the months of the acquisitions. Columns 1-3, 4-6, and 7-9 report coefficients on US FCI for all deals, only cross-border, and only domestic respectively. The estimated coefficients on US FCI are positive for all horizons, and statistically significant at conventional levels in most specifications. The results are similar for both domestic and cross-border acquisitions, and there is some evidence that the returns increase over the time period over which acquisition performance is measured, especially for cross-border acquisitions, when acquirer fixed effects are included.

Overall, these findings suggest that acquisitions that happen around tighter financial conditions globally create greater value; while those that coincide with loose financial conditions report relatively weaker performance.

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<sup>6</sup>Most studies do not report returns of targets, two exceptions are Eckbo and Thorburn, 2000 and Kiyamaz, 2004, both of which report positive returns. We do not analyse returns of targets around acquisitions, as analysis of returns of targets may be affected by selection issues, as targets cease to exist in the dataset after the acquisitions.

## 4 Conclusion

This paper offers evidence for spillovers of financial conditions and exchange rates in the core to M&A activity in the rest of the world. Our results suggest that financial conditions in the core have significant spillover effects on cross-border M&As. Our focus on interaction effects suggests our findings may not merely be a reflection of easier financial conditions at the core being mirrored by policy responses in other countries. In particular, we find that transmission is stronger in some countries than in others, typically countries that have a higher degree of FX liabilities, suggesting some evidence of a “net worth” channel of spillovers. Importantly, therefore, we see an impulse given to M&A activity which need not be primarily based on real economic conditions and investment opportunities but on valuations and access to financing, altered by impulses from elsewhere.

This has a number of implications. The extent of FDI into a country, especially the pattern over time, is sometimes seen as a measure of that country’s health. That some of this FDI (or lack of it) is explained by financial conditions at the core should temper both the euphoria as well as pessimism surrounding that data.

It is well documented that corporate acquisitions are not always driven by value maximization – many fail to create value (see Fernandes, 2019, for example), and acquirers rarely benefit. At the same time, acquisitions are often accompanied by increases in corporate debt. The leveraging of local industry when financial conditions elsewhere are easier leaves a legacy problem for the country when financial conditions at the core tighten. This has always been seen as one of the key problems associated with spillovers but is especially concerning when it accompanies an activity with uncertain benefits. From a regulatory perspective, the implication is not to ban cross-border mergers, but to pay more attention to financial stability concerns when financial conditions are easy.

Relatedly, many emerging market central banks smooth exchange rate movements in response to monetary impulses from the core. Our paper adds to the literature suggesting that there may be a macro-prudential aspect to such smoothing (see Diamond et al., 2020 and Hofmann et al., 2019).

There is much scope for additional research, including looking at the performance of “spillover” induced acquisitions over time, looking at the effect of acquisition-induced leveraging, and getting better data on foreign exchange exposures of the corporate sector. This paper should be viewed as simply a beginning.

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Figure 1: Total value of domestic and cross-border M&As

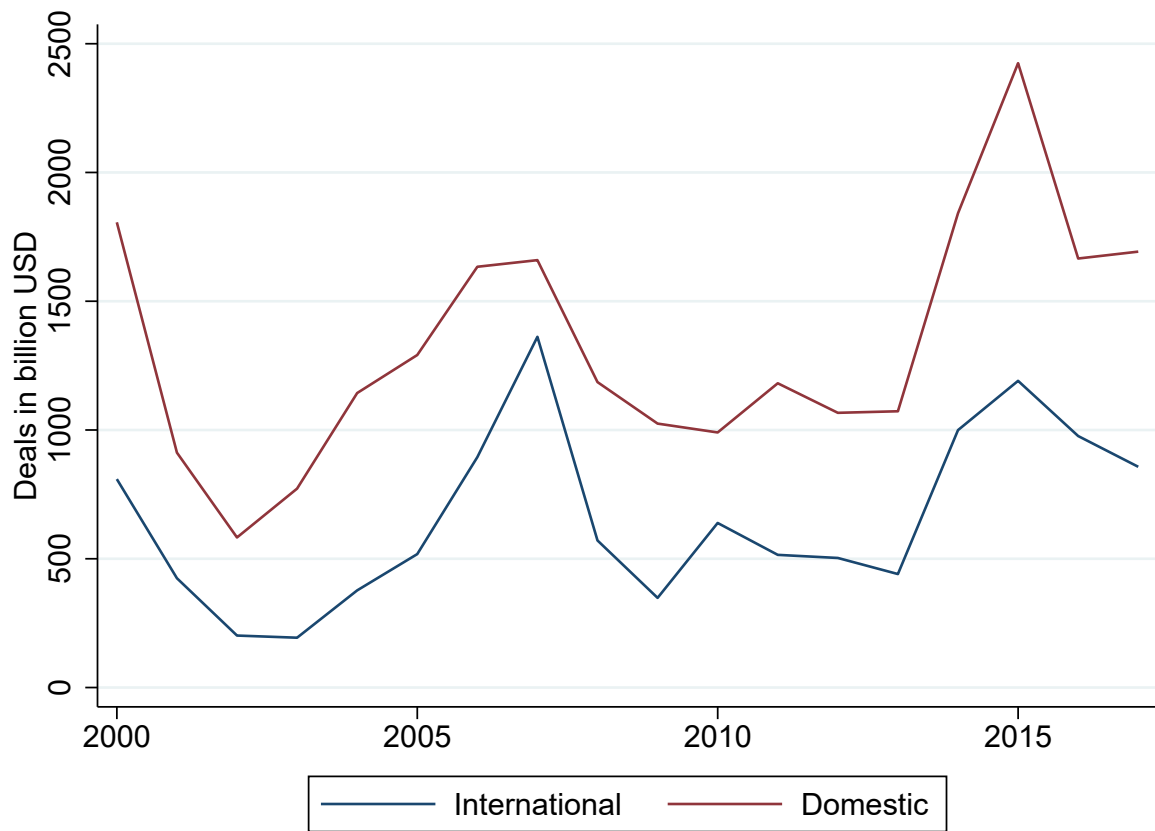


Figure 2: Total value of cross-border M&As: by country groups

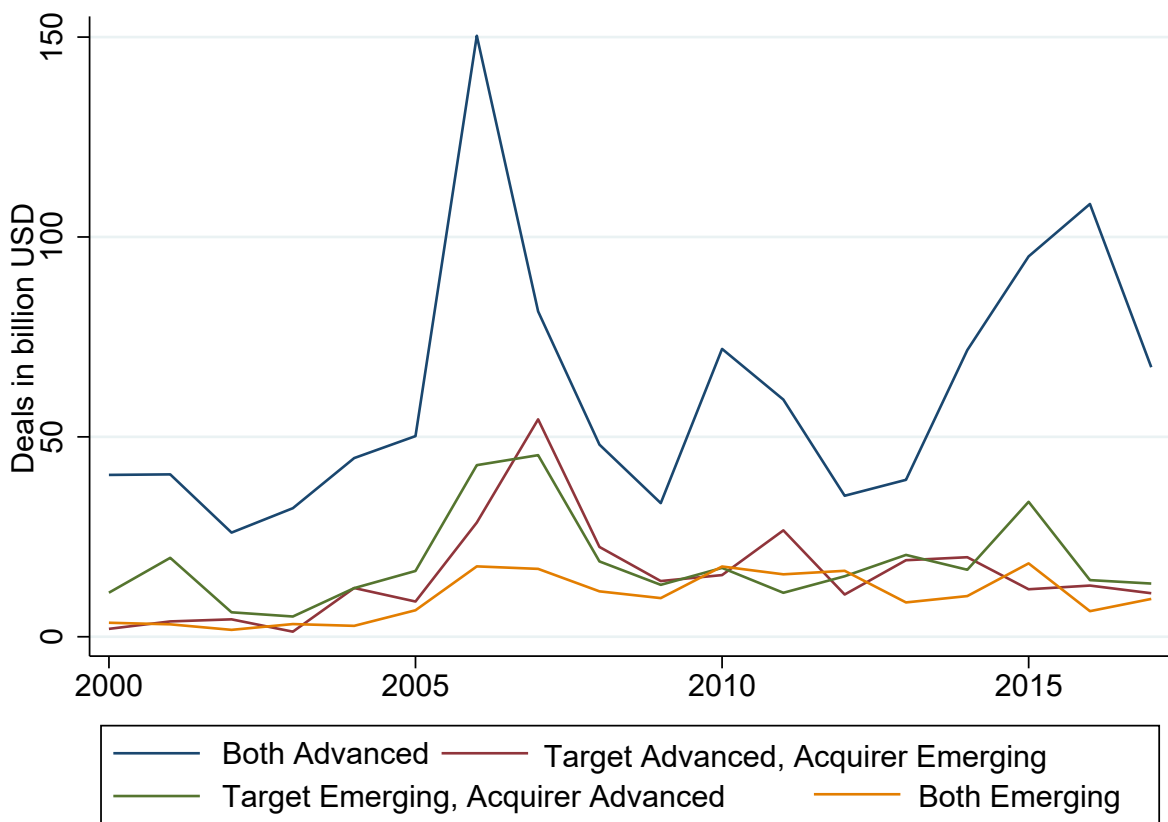


Figure 3: Total value of cross-border M&As: by public/private

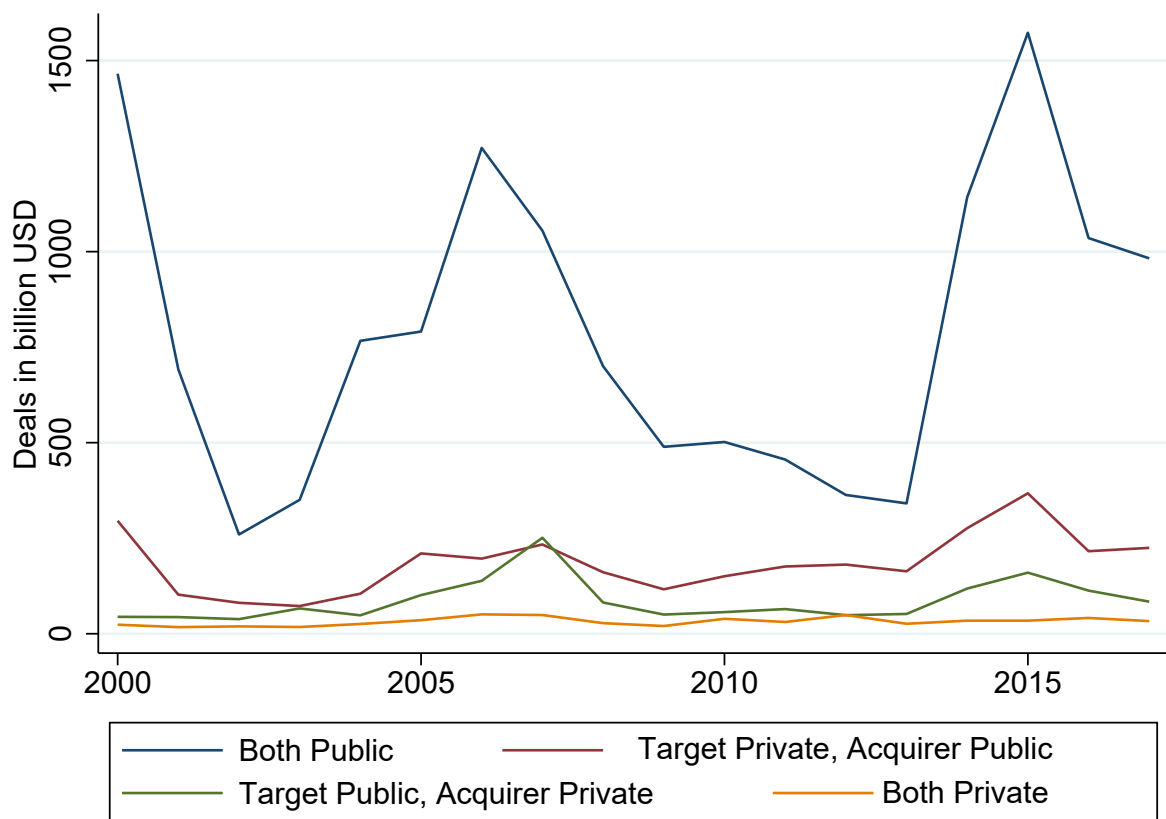




Figure 4: Average annual residual from regression of deal value to GDP and country indicators

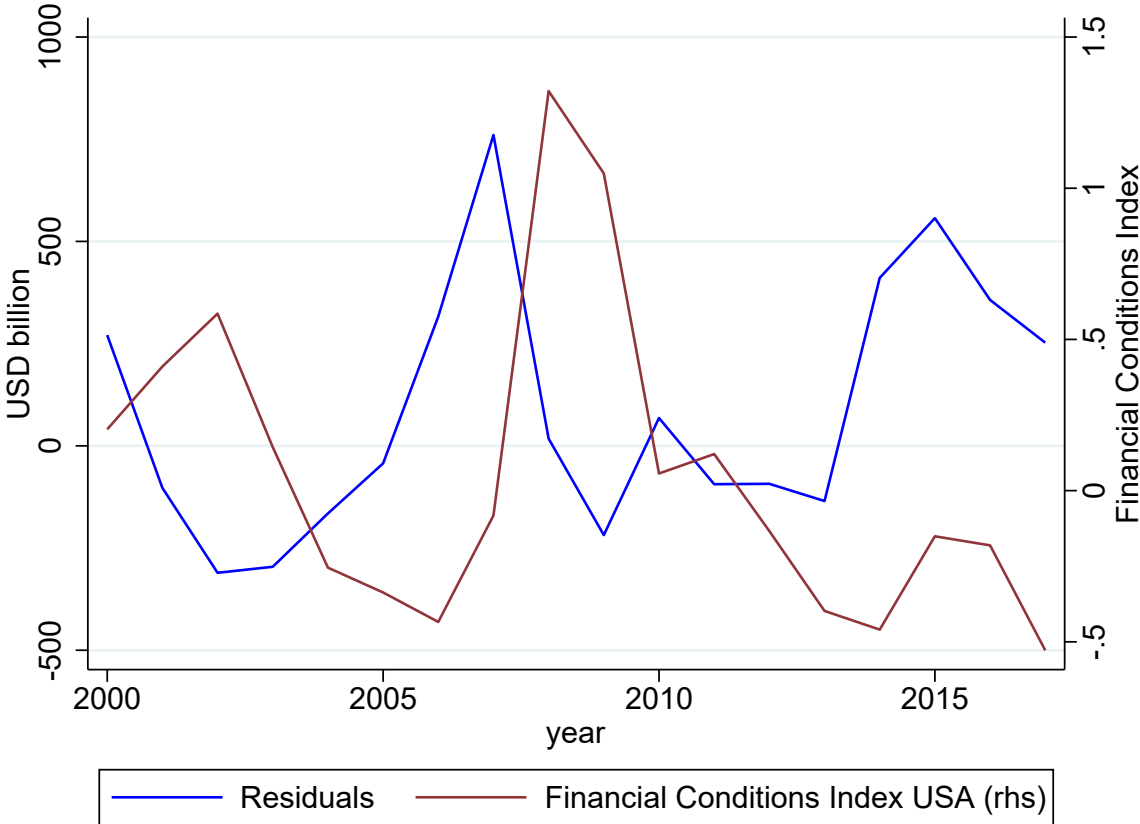


Table 1: Summary statistics

	Unit	Mean	Median	St. Dev.	Min.	Max.	Unique Observations
Bilateral Deals	Million USD	793.5	18.1	4575.6	0.0	170205.7	13210
US Financial Conditions	Index	0.0	-0.1	0.5	-0.5	1.3	17
US Monetary Policy Shocks	Percentage Points	-0.1	-0.1	0.4	-0.5	0.8	17
US NEER	Index	108.6	106.9	9.9	95.5	125.4	17
IMF							
Acquirer Foreign Liabilities in FX	Percent of GDP	75.0	41.0	95.0	8.0	508.0	882
Acquirer Foreign Liabilities in USD	Percent of GDP	42.0	26.0	52.0	4.0	281.0	882
Target Foreign Liabilities in FX	Percent of GDP	74.0	41.0	94.0	8.0	501.0	900
Target Foreign Liabilities in USD	Percent of GDP	42.0	26.0	52.0	3.0	275.0	900
BIS							
Acquirer Foreign Liabilities in FX	Percent of GDP	73.1	15.5	210.6	2.1	1545.7	1715
Acquirer Foreign Liabilities in USD	Percent of GDP	30.5	7.8	73.9	0.5	450.2	1715
Target Foreign Liabilities in FX	Percent of GDP	61.7	11.3	198.8	0.9	1473.6	2414
Target Foreign Liabilities in USD	Percent of GDP	26.3	5.8	72.5	0.3	450.2	2411
SDC							
Acquirer Foreign Debt Issuance in FX	Percent of GDP	5.5	3.0	8.5	0.2	60.8	578
Acquirer Foreign Debt Issuance in USD	Percent of GDP	4.9	2.5	7.9	0.1	52.7	556
Target Foreign Debt Issuance in FX	Percent of GDP	5.2	3.0	7.1	0.2	43.0	579
Target Foreign Debt Issuance in USD	Percent of GDP	4.8	2.5	7.4	0.1	44.9	556

Notes: This table reports summary statistics for key variables used in the analysis.

Table 2: US financial conditions and cross-border M&amp;A activity

	Dependent variable: value of deals (in logs)			
	All cross-border deals		Excluding US	
	(1)	(2)	(3)	(4)
US FCI	-0.09426*** (0.01500)		-0.08334*** (0.01561)	
US Monetary Policy Shock		-0.06737*** (0.01937)		-0.06198*** (0.02013)
Constant	1.16761*** (0.00760)	1.15986*** (0.00756)	1.05827*** (0.00791)	1.05141*** (0.00786)
Observations	48,316	48,316	44,439	44,439
R-squared	0.49269	0.49237	0.42467	0.42440
Target x Acquirer country FE	YES	YES	YES	YES

Notes: All regressions use data from 2000-2017. Columns 1 and 2 include all bilateral deals. Columns 3 and 4 exclude all deals with the acquirer or the target in the United States. Columns 1 and 3 use Financial Conditions Index (FCI) in the United States from IMF GFSR (2018) as the dependent variable, while Columns 2 and 4 include US monetary policy shocks from Iacoviello and Navarro (2018). Target country x acquirer country fixed effects are included in all specifications. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 3: Exchange rate and cross-border M&A activity

	Dependent variable: value of deals (in logs)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All cross-border deals						Excluding US					
US FCI												
US NEER (in logs)	-0.93680*** (0.09094)			-0.10932*** (0.01846)	-1.12551*** (0.10925)		-0.92247*** (0.09481)			-0.09327*** (0.01915)		
NEER in the target (in logs)	0.20930*** (0.06324)	0.33913*** (0.06545)	0.25037*** (0.06364)	0.20228*** (0.06310)	0.21182*** (0.06533)	0.31006*** (0.06759)	0.24771*** (0.06577)	0.21182*** (0.06533)	0.31006*** (0.06759)	0.24771*** (0.06577)	0.18597*** (0.06502)	
NEER in the acquirer (in logs)	0.49466*** (0.08672)	0.46990*** (0.08671)	0.50282*** (0.08658)	0.43720*** (0.08633)	0.43720*** (0.08633)	0.57058*** (0.09010)	0.48776*** (0.09020)	0.57058*** (0.09010)	0.48776*** (0.09020)	0.57650*** (0.08998)	0.47291*** (0.08981)	
Exchange rate target (local currency/US\$)					-0.00461* (0.00247)							-0.00333 (0.00270)
Exchange rate acquirer (local currency/US\$)					-0.01492* (0.00885)							-0.01507* (0.00889)
Observations	48,314	35,282	35,282	35,282	35,282	23,362	44,437	32,582	32,582	32,582	32,582	20,560
R-squared	0.49346	0.51222	0.52092	0.51274	0.51378	0.53572	0.42561	0.44308	0.45209	0.44352	0.44463	0.45642
Target x Acquirer FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE												YES

Notes: All regressions use data from 2000-2017. Columns 1-6 include all bilateral deals. Columns 7-12 exclude all deals with acquirers or targets in the United States. An increase in Nominal Effective Exchange Rates (NEER) denotes an appreciation. An increase in local/US\$ exchange rate denotes a depreciation. Columns 4 and 9 control for the Financial Conditions Index (FCI) in the United States. Target x acquirer fixed effects are included in all specifications. Column 3, 6, 8, and 12 also include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 4: US financial conditions, foreign exchange liabilities, and cross-border M&A activity

	Dependent variable: value of deals (in logs)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All cross-border deals			Excluding US				
US FCI	-0.01072 (0.03670)	0.02040 (0.03769)			0.00551 (0.03824)	0.01145 (0.03810)		
FX Liabilities of target country (% of GDP), 1-year lag	0.00011 (0.00051)	-0.00118** (0.00051)			-0.00007 (0.00052)	-0.00127** (0.00052)		
US FCI * FX liabilities of target (% of GDP), 1-year lag	-0.00043* (0.00022)	-0.00049** (0.00022)			-0.00040* (0.00022)	-0.00046** (0.00022)		
US\$ liabilities of target (% of GDP), 1-year lag			0.00162* (0.00093)	0.00036 (0.00094)		0.00023 (0.00098)	-0.00063 (0.00099)	
US FCI * US\$ liabilities of target (% of GDP), 1-year lag			-0.00104** (0.00042)	-0.00118*** (0.00042)		-0.00093** (0.00044)	-0.00102*** (0.00043)	
FX Liabilities of acquirer (% of GDP), 1-year lag	0.00186*** (0.00047)	0.00010 (0.00049)			0.00181*** (0.00049)	0.00015 (0.00050)		
US FCI * FX liabilities of acquirer (% of GDP), 1-year lag	-0.00068*** (0.00021)	-0.00074*** (0.00021)			-0.00065*** (0.00021)	-0.00070*** (0.00021)		
US\$ liabilities of acquirer (% of GDP), 1-year lag			0.00491*** (0.00092)	0.00255*** (0.00096)		0.00510*** (0.00099)	0.00307*** (0.00102)	
US FCI * US\$ liabilities of acquirer (% of GDP), 1-year lag			-0.00125*** (0.00039)	-0.00149*** (0.00039)		-0.00102*** (0.00040)	-0.00120*** (0.00040)	
Observations	22,862	22,862	22,862	22,862	21,189	21,189	21,189	21,189
R-squared	0.53770	0.54618	0.53829	0.54632	0.46406	0.47317	0.46455	0.47327
Target x Acquirer FE	YES	YES	YES	YES	YES	YES	YES	YES
Time FE		YES		YES		YES		YES

Notes: All regressions use data from 2000-2017. Columns 1-4 include all bilateral deals. Columns 5-8 exclude all deals with acquirers or targets in the United States. Financial Conditions Index (FCI) in the United States are taken from IMF GFSR (2018). FX and US\$ liabilities are taken from an IMF database compiled by Bénétrix et. al. 2019. Target x acquirer fixed effects are included in all specifications. Column 2, 4, 6, and 8 also include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 5: Alternative measures of FX liabilities

	All cross-border deals			
	Average over sample period (1)	(2)	Average until merger (3)	(4)
FX Liabilities of target country (% of GDP)			-0.00013 (0.00101)	
US\$ Liabilities of target country (% of GDP)				0.00240 (0.00211)
FX Liabilities of acquirer country (% of GDP)			-0.00063 (0.00092)	
US\$ Liabilities of acquirer country (% of GDP)				0.00453** (0.00207)
US FCI * FX Liabilities of target country (% of GDP)	-0.00052** (0.00025)		-0.00056** (0.00027)	
US FCI * US\$ Liabilities of target country (% of GDP)		-0.00098** (0.00046)		-0.00098* (0.00054)
US FCI * FX Liabilities of acquirer country (% of GDP)	-0.00080*** (0.00023)		-0.00085*** (0.00024)	
US FCI * US\$ Liabilities of acquirer country (% of GDP)		-0.00190*** (0.00042)		-0.00189*** (0.00049)
Observations	21,133	21,133	21,133	21,133
R-squared	0.54858	0.54874	0.54857	0.54887
Bilateral FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES

Notes: All regressions are from 2000-2017 and include all bilateral deals. Columns 5-8 exclude the US. Financial Conditions Index (FCI) in the United States are taken from IMF GFSR (2018). FX and US\$ liabilities are taken from an IMF database compiled by Bénétrix et. al. 2019. Columns 1-2 use FX liabilities based on averages over the entire sample; 3-4 instead use time varying averages defined over the period from the start of the sample until the year before the merger. Target x acquirer x time fixed effects are included in all specifications. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 6: US financial conditions, foreign exchange liabilities (BIS, SDC), and cross-border M&A activity

	Dependent variable: value of deals (in logs)							
	BIS				SDC			
	All cross-border deals (1)	(2)	(3)	Excluding US (4)	All cross-border deals (5)	(6)	(7)	Excluding US (8)
FX Liabilities of target country (% of GDP), 1-year lag	-0.00045 (0.00031)		-0.00063** (0.00032)		0.00582 (0.00510)		0.00707 (0.00525)	
US FCI * FX liabilities of target country (% of GDP), 1-year lag	0.00003 (0.00009)		0.00006 (0.00010)		-0.00087 (0.00440)		-0.00161 (0.00463)	
US\$ liabilities of target country (% of GDP), 1-year lag		0.00101 (0.00069)		0.00135* (0.00075)		0.00267 (0.00636)		0.00279 (0.00673)
US FCI * US\$ liabilities of target country (% of GDP), 1-year lag		0.00005 (0.00028)		0.00010 (0.00029)		-0.00298 (0.00440)		-0.00202 (0.00492)
FX Liabilities of acquirer country (% of GDP), 1-year lag	0.00051* (0.00030)			0.00048 (0.00030)		0.00454 (0.00422)		0.00510 (0.00436)
US FCI * FX liabilities of acquirer country (% of GDP), 1-year lag	-0.00034*** (0.00008)			-0.00034*** (0.00008)		-0.01071*** (0.00325)		-0.01082*** (0.00331)
US\$ liabilities of acquirer country (% of GDP), 1-year lag		0.00311*** (0.00067)		0.00342*** (0.00069)		-0.00088 (0.00536)		-0.00083 (0.00565)
US FCI * US\$ liabilities of target country (% of GDP), 1-year lag		-0.00127*** (0.00028)		-0.00126*** (0.00028)		-0.01015** (0.00411)		-0.00855* (0.00446)
Observations	36,983	36,955	33,830	33,811	18,266	14,804	16,829	13,525
R-squared	0.53448	0.53484	0.46701	0.46752	0.56338	0.57767	0.49333	0.50613
Target country x Acquirer country FE	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: All regressions use data from 2000-2017. Columns 1-2 and 5-6 include all bilateral deals. Columns 3-4 and 7-8 exclude all deals with acquirers or targets in the United States. Financial Conditions Index (FCI) in the United States are taken from IMF GFSR (2018). In Columns (1)-(4), FX and US\$ liabilities are taken from the BIS which uses cross border claims and liabilities from the BIS local banking statistics. In Columns (5)-(8), FX and US\$ liabilities measures are created using micro data from the SDC. Target x acquirer, and time fixed effects are included in all specifications. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 7: US financial conditions and domestic M&A activity

	Dependent variable: value of domestic deals (in logs)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
US FCI	-0.12175** (0.06173)			-0.02158 (0.08705)			
US NEER		-2.15583*** (0.35200)					
Country FCI			-0.18884*** (0.06434)	-0.18096*** (0.06869)	-0.27551*** (0.07154)		
Country NEER						-0.75646*** (0.25085)	-0.16644 (0.25211)
Observations	2,761	2,761	768	768	768	1,658	1,658
R-squared	0.81553	0.81794	0.72579	0.72581	0.75962	0.82132	0.83246
Country FE	YES	YES	YES	YES	YES	YES	YES
Time FE					YES		YES

Notes: All regressions use data from 2000-2017. All regressions include domestic acquisitions only i.e. when both target and acquirer in the same country. Columns 1 and 5 use Financial Conditions Index (FCI) in the United States from IMF GFSR (2018) as dependent variable. Column 2 includes the nominal effective exchange rate (NEER) of the US. An increase in NEER denotes an appreciation. Columns 4 and 5 also include domestic FCI of the country, while Column 6 includes the country's NEER. Country fixed effects are included in all specifications, while Columns 5 and 7 also include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.



Table 8: US financial conditions, foreign exchange liabilities, and domestic M&A activity

	Dependent variable: value of domestic deals (in logs)			
	(1)	(2)	(3)	(4)
US FCI	-0.26719*** (0.08753)		-0.26353*** (0.09294)	
FX Liabilities of country (% of GDP), 1-year lag	-0.00215 (0.00135)	-0.00352*** (0.00133)		
US FCI * FX liabilities of country (% of GDP), 1-year lag	0.00054 (0.00046)	0.00053 (0.00041)		
US\$ liabilities of country (% of GDP), 1-year lag			-0.00397* (0.00217)	-0.00533*** (0.00202)
US FCI * US\$ liabilities of country (% of GDP), 1-year lag			0.00071 (0.00094)	0.00086 (0.00079)
Observations	900	900	900	900
R-squared	0.80205	0.82217	0.80208	0.82189
Country FE	YES	YES	YES	YES
Time FE		YES	YES	YES

Notes: All regressions use data from 2000-2017. All regressions include domestic acquisitions only i.e. when both target and acquirer in the same country. Financial Conditions Index (FCI) in the United States are taken from IMF GFSR (2018). FX and US\$ liabilities are taken from an IMF database compiled by Bénétrix et. al. 2019. Country fixed effects are included in all specifications. Column 2 and 4 also include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 9: Euro area financial conditions and cross-border M&A activity

	Dependent variable: value of deals (in logs)					
	(1)	(2)	(3)	(4)	(5)	(6)
US FCI	-0.09426*** (0.01500)		-0.19199*** (0.02967)			
EA FCI		-0.03901*** (0.01178)	0.08834*** (0.02331)	0.04590 (0.02871)		
FX Liabilities of target country (% of GDP), 1-year lag				0.00020 (0.00054)	-0.00117** (0.00054)	-0.00161*** (0.00056)
EA FCI * FX liabilities of target country (% of GDP), 1-year lag				-0.00021 (0.00018)	-0.00017 (0.00018)	0.00075** (0.00038)
US FCI * FX liabilities of target country (% of GDP), 1-year lag						-0.00130*** (0.00046)
FX Liabilities of acquirer country (% of GDP), 1-year lag				0.00220*** (0.00050)	0.00032 (0.00051)	0.00004 (0.00053)
EA FCI * FX liabilities of acquirer country (% of GDP), 1-year lag				-0.00058*** (0.00017)	-0.00049*** (0.00017)	0.00010 (0.00033)
US FCI * FX liabilities of acquirer country (% of GDP), 1-year lag						-0.00084*** (0.00041)
Observations	48,316	48,316	48,316	22,864	22,864	22,864
R-squared	0.49269	0.49237	0.49286	0.53729	0.54602	0.54626
Target country x Acquirer country FE	YES	YES	YES	YES	YES	YES
Time FE					YES	YES

Notes. All regressions use data from 2000-2017. All columns include all bilateral deals. Financial Conditions Index (FCI) in the United States and the Euro Area are taken from IMF GFSR (2018). Target x acquirer fixed effects are included in all specifications. Columns 4 and 5 also include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 10: Domestic financial conditions and cross-Border M&A activity

	Dependent variable: value of deals (in logs)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All cross-border deals						Excluding US					
US FCI		-0.06305* (0.03450)			0.04164 (0.05178)			-0.04103 (0.03528)			0.05494 (0.05330)	
Tar. FCI	-0.10352*** (0.02443)	-0.08713*** (0.02617)	-0.07243** (0.03200)	-0.04634 (0.03542)	-0.07532** (0.03422)	-0.05870 (0.03618)	-0.10852*** (0.02542)	-0.09827*** (0.02707)	-0.07715** (0.03351)	-0.04550 (0.03713)	-0.08389** (0.03554)	-0.05518 (0.03783)
Acq. FCI	-0.07051*** (0.02438)	-0.05209* (0.02671)	-0.02782 (0.03294)	-0.08270** (0.03821)	-0.03233 (0.03577)	-0.10109** (0.03926)	-0.06469** (0.02535)	-0.05299* (0.02761)	-0.01797 (0.03448)	-0.07449* (0.04002)	-0.02606 (0.03706)	-0.08891** (0.04094)
FX Liab. of Tar. (% of GDP), lag			0.00095 (0.00062)	-0.00112* (0.00063)	0.00090 (0.00062)	-0.00111* (0.00063)		0.00072 (0.00063)	0.00072 (0.00063)	-0.00117* (0.00064)	0.00072 (0.00064)	-0.00117* (0.00064)
Tar. FCI * FX Liab. of Tar. (% of GDP), lag			-0.00032 (0.00025)	-0.00016 (0.00025)	-0.00017 (0.00027)	0.00000 (0.00026)		-0.00026 (0.00026)	-0.00026 (0.00026)	-0.00018 (0.00026)	-0.00015 (0.00028)	-0.00004 (0.00027)
US FCI * FX Liab. of Tar. (% of GDP), lag				-0.00037 (0.00027)	-0.00047* (0.00026)						-0.00033 (0.00027)	-0.00040 (0.00027)
FX Liab. of Acq. (% of GDP), lag			0.00292*** (0.00058)	0.00036 (0.00060)	0.00288*** (0.00058)	0.00037 (0.00060)		0.00284*** (0.00059)	0.00284*** (0.00059)	0.00044 (0.00061)	0.00285*** (0.00060)	0.00046 (0.00061)
Acq. FCI * FX Liab. of Acq. (% of GDP), lag			-0.00073*** (0.00022)	-0.00038* (0.00022)	-0.00059** (0.00023)	-0.00019 (0.00023)		-0.00075*** (0.00023)	-0.00075*** (0.00023)	-0.00045* (0.00023)	-0.00064*** (0.00024)	-0.00029 (0.00024)
US FCI * FX Liab. of Acq. (% of GDP), lag				-0.00040 (0.00025)	-0.00059** (0.00025)						-0.00033 (0.00025)	-0.00049** (0.00025)
Observations	19,624	19,624	17,349	17,349	17,349	17,349	18,148	18,148	16,029	16,029	16,029	16,029
R-squared	0.52271	0.52280	0.53827	0.54758	0.53840	0.54780	0.44782	0.44787	0.46361	0.47360	0.46371	0.47378
Tar. x Acq. FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE												

Notes. All regressions use data from 2000-2017. Columns 1-6 include all bilateral deals. Columns 7-12 exclude all deals with the acquirer or the target in the United States. Financial Conditions Index (FCI) in the United States and other countries are taken from IMF GFSR (2018). If a bilateral country pair did not report a deal between the start and end of the period it reports data for, we assume the value to be zero. Target x acquirer fixed effects are included in all specifications. Columns 4 and 6 also include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 11: Country exchange rates, foreign exchange liabilities, and cross-border M&A activity

	Dependent variable: value of deals (in logs)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		All cross-border deals			Excluding US			
Target country exchange rate	-0.01342* (0.00700)	-0.01346* (0.00718)	-0.01036 (0.00692)	-0.01122 (0.00701)	-0.00818 (0.00719)	-0.00819 (0.00741)	-0.00452 (0.00699)	-0.00594 (0.00712)
FX liab. target country (% of GDP), 1-year lag	-0.00052 (0.00087)	-0.00235*** (0.00087)			-0.00071 (0.00090)	-0.00238*** (0.00090)		
Target exchange rate * FX liab. target (% of GDP), 1-year lag	-0.00018*** (0.00006)	-0.00005 (0.00006)			-0.00020*** (0.00006)	-0.00007 (0.00006)		
US\$ liab. target country (% of GDP), 1-year lag			0.00057 (0.00134)	-0.00088 (0.00137)		-0.00155 (0.00145)		-0.00232 (0.00147)
Target exchange rate * US\$ liab. target (% of GDP), 1-year lag			-0.00030*** (0.00010)	-0.00013 (0.00010)		-0.00031*** (0.00009)		-0.00014 (0.00010)
Acquirer country exchange rate	-0.04178 (0.03755)	-0.01611 (0.03724)	-0.04415 (0.03775)	-0.01616 (0.03747)	-0.05327 (0.03784)	-0.02918 (0.03807)	-0.05269 (0.03798)	-0.02836 (0.03819)
FX liab. of acquirer country (% of GDP), 1-year lag	0.00331*** (0.00088)	0.00058 (0.00091)			0.00327*** (0.00092)	0.00071 (0.00094)		
Acquirer exchange rate * FX liab. acquirer (% of GDP), 1-year lag	-0.00023*** (0.00005)	-0.00008* (0.00005)			-0.00025*** (0.00005)	-0.00010* (0.00005)		
US\$ liab. of acquirer country (% of GDP), 1-year lag			0.00810*** (0.00133)	0.00547*** (0.00141)		0.00835*** (0.00148)		0.00630*** (0.00153)
Acquirer exchange rate * US\$ liab. acquirer (% of GDP), 1-year lag			-0.00044*** (0.00008)	-0.00023*** (0.00008)		-0.00048*** (0.00009)		-0.00028*** (0.00009)
Observations	9,180	9,180	9,180	9,180	8,074	8,074	8,074	8,074
R-squared	0.58894	0.60007	0.59020	0.60058	0.49622	0.50843	0.49776	0.50948
Bilateral FE	YES	YES	YES	YES	YES	YES	YES	YES
Time FE		YES	YES	YES	YES	YES	YES	YES

Notes. All regressions are from 2000-2017. Columns 1-4 include all bilateral deals. Columns 5-8 exclude all deals with the acquirer or the target in the United States. Target and Acquirer country exchange rates are vis-a-vis the US\$, and obtained from the IMF. FX and US\$ liabilities are taken from an IMF database compiled by Bénétrix et. al. 2019. Target x acquirer fixed effects are included in all specifications. Column 2, 4, 6, and 8 also include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 12: Additional robustness. US financial conditions, foreign exchange liabilities, and domestic M&A activity

	Count of deals (in logs)	Value cross-border deals (in logs, control for domestic)	Value cross-border deals over deals total in target	Value cross-border deals over total deals in acquirer						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
US FCI	-0.15995*** (0.02816)	-0.07384*** (0.01670)	-0.02075*** (0.00230)	-0.02431*** (0.00203)						
FX Liabilities of target (% of GDP), 1-year lag	-0.00302** (0.00133)	-0.00105** (0.00052)	0.00020*** (0.00007)						-0.00001 (0.00005)	
US FCI * FX liabilities of target (% of GDP), 1-year lag	-0.00078 (0.00051)	-0.00050** (0.00022)	-0.00035*** (0.00002)						0.00001 (0.00002)	
US\$ liabilities of target (% of GDP), 1-year lag	0.00138 (0.00164)	0.00027 (0.00049)								0.00004 (0.00010)
US FCI * US\$ liabilities of target (% of GDP), 1-year lag	-0.00200*** (0.00047)	-0.00088*** (0.00021)								0.00000 (0.00004)
FX Liabilities of acquirer (% of GDP), 1-year lag									0.00021*** (0.00005)	
US FCI * FX liabilities of acquirer (% of GDP), 1-year lag										-0.00047*** (0.00002)
US\$ liabilities of acquirer (% of GDP), 1-year lag										0.00075*** (0.00010)
US FCI * US\$ liabilities of acquirer (% of GDP), 1-year lag										-0.00088*** (0.00004)
Domestic deals in (target, year) (in logs)		0.09207*** (0.00657)	0.16029*** (0.01479)							
Domestic deals in (acquirer, year) (in logs)		0.05246*** (0.00573)	0.04410*** (0.01281)							
Observations	48,316	22,864	22,646	22,835	22,835	22,835	22,835	47,065	36,482	36,482
R-squared	0.92043	0.92942	0.54840	0.45126	0.44540	0.45126	0.45098	0.56353	0.55597	0.55792
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes. All regressions use data from 2000-2017. Regressions include all bilateral deals. Financial Conditions Index (FCI) in the United States are taken from IMF GFSR (2018). FX and US\$ liabilities are taken from an IMF database compiled by Bénétrix et. al. 2019. Target x acquirer fixed effects are included in all specifications. Column 2-4 include time fixed effects. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table 13: Abnormal returns of the acquirer for different phases of US FCI

	Mean	Median	25th pct	75th pct
Loosening	-1.6051	-1.3499	-12.1686	8.7575
Tightening	1.8458	0.0947	-9.5956	10.6155

Notes. This table reports summary statistics on residual excess returns of the acquirer during periods of loosening and tightening of FCI. Periods of loosening (tightening) defined by a decline (increase) in US FCI in the month previous to the announcement of the acquisition. Excess returns are calculated as the change in acquirer's stock market price from the month before the announcement of the acquisition to two months after the acquisition, net of the change in the country's overall stock market index over the same period.

Table 14: The stock price reaction to announcements of M&As, and their relation to US FCI

Months after announcement	All deals			Only cross-border			Only domestic		
	0 (1)	1 (2)	2 (3)	0 (4)	1 (5)	2 (6)	0 (7)	1 (8)	2 (9)
No FE	0.619*** 0.100	0.773*** 0.131	1.006*** 0.154	0.276 0.164	0.536* 0.213	0.607* 0.250	0.774*** 0.125	0.874*** 0.164	1.153*** 0.191
Country FE	0.618*** 0.100	0.790*** 0.131	1.041*** 0.154	0.338* 0.164	0.580** 0.213	0.652** 0.250	0.742*** 0.125	0.869*** 0.164	1.171*** 0.192
Acquirer FE	0.491*** 0.090	0.849*** 0.122	1.235*** 0.147	0.100 0.134	0.556** 0.181	0.852*** 0.216	0.653*** 0.126	0.800*** 0.172	1.315*** 0.208

Notes. All regressions use data from 2000-2017. Columns 1-3, 4-6, and 7-9 include all bilateral deals, only cross-border, and only domestic respectively. All regressions include monthly data on Financial Conditions Index (FCI) in the United States interpolated from quarterly data in IMF GFSR (2018). Excess return is for the acquirer, and computed using monthly data on stock prices from Worldscope, and is adjusted for monthly market returns. All differences in stock prices are measured relative to the month before deal. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

## A Additional Tables



Table A1: Exchange rate and cross-border M&A activity: Heterogeneity

	Dependent variable: value of deals (in logs)					
	All cross-border Deals			Excluding US		
	(1)	(2)	(3)	(4)	(5)	(6)
NEER in the target (in logs)	0.33917*** (0.06545)	-0.11739 (0.12090)	0.33159*** (0.09246)	0.31010*** (0.06759)	-0.14703 (0.12804)	0.32924*** (0.09578)
NEER in the acquirer (in logs)	0.47007*** (0.08672)	0.33248** (0.15889)	0.52276*** (0.11409)	0.48793*** (0.09021)	0.35628** (0.17097)	0.53059*** (0.12073)
Log Target NEER * Dummy = 1 if Target EM		0.65840*** (0.14005)			0.61982*** (0.14696)	
Log Acquirer NEER * Dummy = 1 if Acquirer EM		0.34786* (0.18560)			0.29209 (0.19729)	
Log Target NEER * Dummy = 1 if Acquirer EM		0.04148 (0.14442)			0.09283 (0.14677)	
Log Acquirer NEER * Dummy = 1 if Target EM		-0.09969 (0.17131)			-0.06173 (0.17801)	
Log Target NEER * Dummy = 1 if year >= 2008			0.01633 (0.14566)			-0.04166 (0.15083)
Log Acquirer NEER * Dummy = 1 if year >= 2008			-0.11911 (0.18162)			-0.09522 (0.19150)
Observations	35,283	35,031	35,283	32,583	32,367	32,583
R-squared	0.52092	0.52073	0.52093	0.45209	0.45197	0.45210
Bilateral FE	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES

Notes. All regressions are from 2000-2017. Columns 1-3 include all bilateral deals. Columns 4-6 exclude the US. An increase in Nominal Effective Exchange Rates (NEER) denotes an appreciation. Target x acquirer and time fixed effects are included in all specifications. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

Table A2: Alternative measures of FX liabilities

	Dependent variable: value of deals (in logs)											
	Average over sample period						Average until merger					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
FX liabilities target							-0.00013 (0.00101)		-0.08146 (0.06555)		-0.11479* (0.07303)	
US\$ liabilities target							0.00240 (0.00211)		0.00036 (0.06339)		-0.21351*** (0.07078)	
FX liabilities acquirer							-0.00063 (0.00092)		-0.00657 (0.06578)		-0.01303 (0.07303)	
US\$ liabilities acquirer							0.00453*** (0.00207)		-0.21718*** (0.06927)		-0.16731** (0.07237)	
US FCI * FX liabilities target	-0.00052** (0.00025)		-0.00860 (0.05060)		-0.08030 (0.05585)		-0.00056** (0.00027)		0.02437 (0.05099)		-0.06970 (0.05745)	
US FCI * US\$ liabilities target	-0.00098** (0.00046)		-0.06168 (0.05067)		-0.04477 (0.05609)		-0.00098* (0.00054)		-0.03716 (0.05092)		-0.05745 (0.05669)	
US FCI * FX liabilities acquirer	-0.00080*** (0.00023)		-0.13341*** (0.05103)		-0.20328*** (0.05246)		-0.00085*** (0.00024)		-0.13286** (0.05160)		-0.11902** (0.05333)	
US FCI * US\$ liabilities acquirer	-0.00190*** (0.00042)		-0.18454*** (0.05164)		-0.14777*** (0.05328)		-0.00189*** (0.00049)		-0.16485*** (0.05196)		-0.12464** (0.05474)	
Observations	21,133	21,133	21,133	21,133	21,133	21,133	21,133	21,133	21,133	21,133	21,133	21,133
R-squared	0.54858	0.54874	0.54837	0.54854	0.54860	0.54841	0.54857	0.54887	0.54842	0.54874	0.54843	0.54868
Bilateral FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes. All regressions are from 2000-2017, and include all bilateral deals. Financial Conditions Index (FCI) in the United States are taken from IMF GFSR (2018). FX and US\$ liabilities are taken from an IMF database compiled by Bénétix et. al. 2019. All values in percent of GDP. Columns 1-2 use FX liabilities based on averages over the entire sample; 3-4 and 5-6 use dummies for the average liabilities to be greater than the median and 75th percentile respectively. Columns 7-12 instead use time varying averages defined over the period from the start of the sample until the year before the merger. Target x acquirer x time fixed effects are included in all specifications. Robust standard errors reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.