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Maturity Mismatch and Financial Crises: Evidence from Emerging Market Corporations*

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Abstract

Substantial attention has been paid in recent years to the risk of maturity mismatch in emerging markets. Although this risk is microeconomic in nature, the evidence advanced thus far has taken the form of macro correlations. We evaluate this mechanism empirically at the micro level by using a database of over 3000 publicly traded firms from fifteen emerging markets. We measure the risk of short-term exposure by estimating, at the firm level, the effect on investment of the interaction of short-term exposure and aggregate capital flows. This effect is (statistically) zero, contrary to the prediction of the maturity-mismatch hypothesis. This conclusion is robust to using a variety of different estimators, alternative measures of capital flows, and controls for devaluation effects and access to international capital. We do find evidence that short-term-exposed firms pay higher financing costs and liquidate assets at "fire sale" prices, but not that this reduction in net worth translates into a drop in investment.

Keywords: maturity mismatch, investment, financial crises
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I Introduction

The risk of "maturity mismatch" for emerging-market firms has received considerable attention in recent years. Although business assets are (stereotypically) installed for the long term and therefore illiquid, capital-market frictions and distortions may induce firms to issue debt with relatively short maturity. Should aggregate credit conditions shift suddenly, these same firms, unable to renew their debt, might have to curtail investment and perhaps liquidate. On the aggregate level, entire economies may be at risk of an investment collapse in the event of a capital-account reversal. Proponents of this view include Radelet and Sachs (1998) and Chang and Velasco (1999), who argue that excessive reliance on short-term debt leaves emerging-market corporations vulnerable to "financial panic" as in the stylized model of Diamond and Dybvig (1983).

These discussions were largely inspired by the financial crises that affected East Asia and Latin America in the 1990s. The idea took on particular poignancy in reference to the emerging markets of Asia, where the corporate sector was highly leveraged leading up to the crisis, and where much of this indebtedness was at the short term.

That such a scenario is logically possible is by now beyond doubt. That such a mechanism is of quantitative importance, however, remains an empirical question. Unfortunately, the "macro" observation that crises occur with greater frequency in economies that have more short-term indebtedness does not constitute sufficient evidence. "Weaker" economies and those exposed to larger shocks may in equilibrium issue debt at shorter durations. Moreover, in equilibrium, capital flight will almost mechanically be associated with a decline in investment, but it will not necessarily be the ultimate or even the proximate cause.

Instead, we examine this mechanism at the micro level by examining the behavior of corporate investment. This analysis involves comparing firms that face the same shift in aggregate credit conditions, but differ in their potential exposure. According to the maturity-mismatch hypothesis, firms with excessive short-term debt should suffer most from the aggregate capital outflow.

We assemble a database with accounting information (including the maturity composition of liabilities) for approximately 3000 publicly traded non-financial firms in emerging markets. The countries represented in this sample consist of five East Asian countries (Indonesia, Malaysia, Philippines, South Korea, and Thailand), seven Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela) and three additional emerging markets (Israel, South Africa, and Turkey). These data cover some of the largest emerging markets for 1990's, a period

of substantial capital-account volatility for most of these countries. In addition, there are firms in our sample that hold substantial amounts of short-term debt. These elements constitute the two ingredients necessary for examining the proposed mechanism. The choice of publicly listed firms is determined exclusively by the availability of accounting data. Moreover, we concentrate on the non-financial sector of the economy, as it is here that investment decisions are ultimately carried out.

The specific empirical strategy is to assess whether firms with more short-term exposure invest less in the aftermath of capital flight. We do so by estimating reduced-form equations for investment. The proposed mechanism centers on the interaction of short-term indebtedness with capital flows, and so the key variable in the analysis is

$$(\text{ Short-Term Exposure })_{i,t-1} \times (\text{ Capital Flows })_t$$

for firm i at time t. This analysis allows us to better understand whether the marginal unit of debt is allocated across firms in such a way as to generate the large risk suggested by the maturity-mismatch hypothesis. The hypothesis is that we should estimate a strong and positive effect of this interaction.

The main empirical result is that the investment response of relatively short-term-exposed firms to aggregate capital flows is statistically indistinguishable from that of firms that hold predominantly long-term debt. This finding is robust to the inclusion of controls for preexisting firm differences as well as to the interaction of these controls with aggregate macroeconomic variables. We find this non-result in spite of the strong prediction of the maturity-mismatch hypothesis: that firms with more short-term debt should invest substantially less following an episode of capital flight. This non-result plays out at the regional level as well: no significant, robust effect is found among East Asian or Latin American corporations. Moreover, we show that the finding is not sensitive to using using a variety of different estimators, alternative measures of capital flows, and controls for devaluation effects and access to international capital.

Note that we do not claim that capital flight is not associated with investment collapses. Indeed, in these data, there is a strong, positive correlation between the two. Instead, we find that capital outflow does not differentially affect firms with different maturity structures of debt. Moreover, the lack of any such relationship, we argue, indicates that this "maturity mismatch" channel may simply not be of quantitative importance for these firms in this period.

Nor do we suggest that short-term-exposed corporations are indifferent to capital flight. Indeed,

we find the opposite. First, these firms face higher interest charges, some of which they pay immediately and some of which is apparently recapitalized as debt going forward. In addition, they are less able to raise external funds by issuing new debt. Moreover, we show that they liquidate assets at a significant loss. The equity holders of these firms lose, and the relevant counterparties gain. Nevertheless, this transfer of resources out of the firm does not appear to affect the investment decision.

The rest of the study is organized as follows. Section II presents a description of the data employed, while more detailed information on data sources is contained in Appendix A. Section III contains the main empirical results for investment and debt maturity, while in Section IV, we present sensitivity analysis. An estimates of changes in net worth across firms is found in Section V. Section VI concludes.

II Data and Descriptive Statistics

II.A Construction of the Sample

This section describes our sample and variables. The principal source for the data employed in this study is Worldscope (Thomson Financial, 2003), a database of firm-level accounting information which has been input from the annual reports and corporate filings of mainly publicly traded firms. Our sample consists of non-financial corporations in 15 emerging markets. The data contain accounting information from as far back as 1980 and from as recent as 2002, but the bulk of our sample is from the decade of the 1990s. Table 1 shows the number of observations per country and year. The size of the sample changes as new firms are listed and incorporated into the database. Bankrupt or de-listed firms are not removed from Worldscope, and we track their eventual disposition (see below). For our estimates, we use a sample restricted to the non-financial firms for which maturity-composition data is available.

We group the sample based on three broad categories. First, there are firms from five East Asian countries: Indonesia, Malaysia, the Philippines, South Korea, and Thailand. Second, we include data on corporations from seven countries in Latin America: Argentina, Brazil, Colombia, Chile, Mexico, Peru, and Venezuela. Finally, for comparison purposes, we also include in our dataset information from three additional emerging markets: Israel, South Africa, and Turkey.

Throughout the analysis, the main dependent variables are the various components of invest-

ment. The first is investment in fixed capital, which is measured as expenditures on fixed assets. The second, investment in inventories, is defined as the change in inventories in a given period. Inventories include raw materials, work in progress and finished goods. The third measure of investment is the (cash generated from the) disposal of fixed assets. The first and third variables are detailed in the cash-flow statement. We opt not to use the change in net fixed assets as a measure of investment because accounting standards in some of the countries in our sample allow for arbitrary revaluations of assets, making it impossible to separate investment from (endogenous) changes in the accounting valuation of capital goods.

Each investment variable figures into the analysis in distinct ways. We investigate the response of purchases of fixed capital to better understand how the proposed mechanisms might affect the productive capacity of the firm in the medium term. On the other hand, it has also been argued that falling net worth not only affects the supply of long-term credit for investment, but it also affects the availability of short-term working capital. A shortage of working capital reduces the firm's capacity to purchase intermediate goods and pay for variable factors of production. To explore this channel, we also examine the behavior of inventory investment. Finally, financial crunches might oblige firms to engage in "fire sales" on their assets, a behavior that should be captured partly by the disposal of fixed assets. Columns 5–7 of Table 2 contain summary statistics for these investment variables for each country in the sample.

In addition, the database contains other key information about the firm, such as its main products, sectors of operation, ownership structure and a history of the main corporate events.

The main explanatory variable is short-term exposure, which is the difference between current liabilities and current assets. Current liabilities includes all liabilities coming due in the upcoming fiscal year. This measure includes debt issued at short maturities as well as long-term issuances whose terminal date falls in the upcoming year. Current assets include highly liquid instruments such as cash as well as holdings that are normally liquidated rapidly, such as inventories and other intermediate goods. These variables plus total liabilities are summarized in Columns 1–4 of Table 2.

The original accounting data are then modified in four ways:

1. We inflate all data to 2002 values using December-December changes in the consumer price index, and convert them to US dollars using the market exchange rate for December of 2002.

2. In the event of a merger, a spin-off or a split, we construct an artificial firm that contains all of the component firms for the entire sample period. In the cases in which information on

all component firms is not available, we drop the firm from the sample. Worldscope provides information on the reasons for which accounting data is no longer updated on all firms. We use this information to build our artificial firms.

3. In the event of bankruptcy, we assume that existing capital is liquidated and impute (dis)investment values equal to the lagged fixed capital stock in the following period.

4. We drop all firm/year observations if the accounting data is not self consistent. In particular, we drop observations if short-term liabilities exceed total liabilities or if accounting variables do not accord with sign conventions. This results in the deletion of 506 observations.

5. We compute the logarithmic change in total assets and construct a z-score using the sample mean and standard deviation. We drop 106 firm/year observations that have $|z| > 6$. In addition we construct z-scores for all dependent and independent variables and drop those observations for which $|z| > 6$.

Note that our results are robust to changes in the treatment of bankrupt firms, changes in the criteria for dropping outliers and in changes in the treatment of firms involved in a merger, a spin-off or a split.[1]

Finally, the main macroeconomic variable employed in the present study is the net capital account, expressed as a percentage of lagged GDP. These flows exhibit substantial variability in this period, and are prone to large movements, especially during crisis episodes such as the "Tequila crisis" or the "Asian flu". (Please see Appendix A for more details on the data series.) The country-level macro data is then merged with the firm data. Firms are mapped to countries on the basis of where their stock is traded. Additional macroeconomic variables are described in the text as they are introduced.

II.B Graphical Summaries

Several of the pertinent contrasts—and similarities–between the East Asia and Latin America are evident in Figure 1. This figure displays kernel estimates of the probability density functions of four variables central to the present study: the fraction of liabilities due in the upcoming year,

[1] Appendix Table 1 reports these robustness tests in detail. We also regress a binary indicator for these corporate events on the specifications used below, and do not find that our interaction variable of interest predicts having an event.

the fraction of assets that are "current", the ratio of liabilities to assets, and the net short-term exposure. The density estimates for the Asia sample are represented by a solid line, and the estimates for Latin America are displayed as a dashed line.

The density estimates for debt maturity and overall leverage confirm the conventional wisdom about the balance-sheet deficiencies of East Asian corporations. In Panel A of Figure 1, we graph the ratio of short-term to total liabilities. We see a marked difference between the regions on this measure. While the Latin American distribution is roughly bell shaped and centered around six tenths, the East Asia is shifted to the right (*i.e.*, shorter term). Indeed, the mode of the Asia density is almost at one (100% short term). Similarly, East Asian corporations tended to have substantially greater liabilities than their Latin American counterparts, as seen in Panel C.

However, when we combine this with the other side of the balance sheet, the Asian situation seems less dire. Of note in Panel B of Figure 1 is that the distribution of current (*i.e.*, short term) assets for East Asian corporates was also shifted to the short end, relative to Latin American firms. To assess maturity structure on both sides of the balance sheet, we take the difference between short-term liabilities and current assets, which we call short-term exposure. The regional density estimates of this difference are displayed in Panel D. The Asia distribution does not exhibit the rightward shifting seen in the case of short-term liabilities. Indeed, the densities from both regions align very closely.

The regional similarity in the distribution hardly dispels preoccupations about the risk of short-term exposure. Credit markets in either region may not be robust enough to transfer capital from the lower to the upper tail (of Panel D) in a crisis. Moreover, this could be exacerbated for Asia by the fact the distribution of short-term exposure is a bit more spread out than in Latin America. On the other hand, the shocks to capital markets in East Asian may have placed a greater penalty on short-term exposure. With these uncertainties in mind, we set out to measure the effects of short-term exposure below.

III Investment Regressions

In this section, we examine the "maturity mismatch" hypothesis and find it lacking. We fail to find robust differences in the investment behavior among firms with very different levels of potential exposure to the flight of capital from the country. Specifically, we propose and implement a simple regression equation that allows for the estimation of differential responses to capital flows by firms

with different maturity structures on their balance sheet. In almost every case, we find that this relationship is not significantly different from zero, and in no case do we find a robustly significant effect.

III.A Empirical Methodology

The central empirical question of this study is how the change in domestic credit interacts with the maturity structure of firms' balance sheet to alter investment behavior. Therefore, the key explanatory variable in the analysis is the interaction of firm i's lagged short-term exposure, $exp^{ST}_{i,t-1}$, with aggregate (net) capital flows, Δk_{jt}, into country j at time t . (In what follows, we abbreviate this second-order term as $(exp^{ST} \times \Delta k)$ for brevity.) The prediction of the maturity-mismatch hypothesis is that firms with more short-term debt should invest less following an episode of capital flight. Since an outflow is defined negatively, this implies a strongly positive coefficient on $(exp^{ST} \times \Delta k)$. (The exception being for the disposal of capital, for which we expect a negative relationship.)

In addition to the interaction, we include terms that control for the first-order effects of balance-sheet variables and macro conditions. Including the main effect of short-term debt absorbs any pre-existing differences among firms with different levels of short-term indebtedness. Such differences might have prevailed in the absence of movements in the capital account, *e.g.*, if expanding firms were more likely to issue short-term debt than stagnant ones. (Below, we refer to lagged short-debt exposure mnemonically as exp^{ST}.) The macro main effect, a fixed effect for country $\times$ year, captures the macroeconomic changes that may impact all firms in the economy without regard to the maturity composition of their balance sheet.

The basic specification (for firm i in country j at year t) that results is

$$I_{ijt} = \beta(exp^{ST}_{i,t-1} \times \Delta k_t) + \delta_{jt} + \gamma exp^{ST}_{i,t-1} + \epsilon_{ijt} \tag{1}$$

in which I_{ijt} is a measure of investment. We estimate this equation using Ordinary Least Squares (OLS) on the accounting data described above. Note that investment is therefore modeled as a function of predetermined micro-level variables plus the contemporaneous (macro) measure of capital flows, which is exogenous to any particular firm. Therefore, OLS can consistently estimate this reduced-form equation. To equation 1, we also add additional firm and macroeconomic control variables. For example, we typically include a control for lagged total debt and current assets, as well as their interactions with the capital flow. Other examples are detailed below.

III.B Results for Whole Sample

Among firms in our sample, we find no robust, statistically significant evidence that short-term exposure reduced investment following capital flight. We employ the empirical methodology detailed above, and pay particular attention to the estimated coefficient on the interaction of lagged short-term debt and capital flows, ($exp^{ST} \times \Delta k$). We generally estimate this coefficient to be insignificantly different from zero: i.e., approximately the same response of investment by "short-term" and "long-term" firms to aggregate capital flows.

This result can be seen in Table 3, which contains estimates of equation (1) and variants. Columns (1), (4), (7), and (10) show the estimate of the simplest equation, a specification that consists exclusively of ($exp^{ST} \times \Delta k$), the first-order effect of lagged short-term debt, and country×year fixed effects. Columns (2), (5), (8), and (11) add leverage and current assets as controls and as interactions with the capital flows. Finally, in Columns (3), (6), (9), and (12), the specification also includes a lagged dependent variable as an independent regressor. The inclusion of the lagged dependent variable allows for the presence of adjustment costs. We estimate the effect on current-year investment in Panel A, whereas Panel B contains results for investment for the following year as the dependent variable. (Note that all the micro-level variables are lagged one year, so "current year" means contemporaneous with the macro variable. For Panel B, the dependent variable is from period $t + 1$ and the lagged dependent variable is therefore from period t.) We review the results for each type of investment in turn in the following paragraphs.

First, the interaction of short-exposure and capital flows is not a robust determinant of capital expenditures. The basic result for capital expenditures are the most favorable to the maturity-mismatch hypothesis. In Column (1), we see that the OLS estimation of equation (1) without additional controls yields a positive and significant coefficient on ($exp^{ST} \times \Delta k$). However, this is not robust to the inclusion of additional balance sheet data or of the lagged dependent variable. We also estimate a positive correlation between short-term exposure and investment in Column (1). When total debt and its capital-flow interaction are both added to the regression (shown in Column (2)), the first-order effect of exp^{ST} is no longer significant.

Second, ($exp^{ST} \times \Delta k$) is not a robust, correctly signed determinant of the disposal of fixed assets. The more parsimonious specifications yield significant, positive estimates of the effect of ($exp^{ST} \times \Delta k$) on asset sales. However, this effect is weaker upon inclusion of a lagged dependent variable. In any case, since we expect more asset disposal by short-term-exposed firms when the

capital account is negative, the initial results have the apparently incorrect sign. This raises a possible limitation of the accounting data: sales of assets measure price × quantity. If financially distressed are forced into holding "fire sales" of their assets, the response of price might exceed the response of quantity. To be sure that our results are not contaminated by price effect, we also examine the extensive margin of disposal.[2] These results are located in Columns (7) through (9) of Table 3. We find no robust and significant effect of $(exp^{ST} \times \Delta k)$ on the probability that a firm sells fixed assets.

Third, the coefficient on $(exp^{ST} \times \Delta k)$ is insignificantly different from zero in all specifications for inventory investment. This result is peculiar since the inability to renew short-term debt should restrict firms' working capital particularly. Firms apparently do not run down inventories in order to make up this gap. On the other hand, the interaction of current assets with capital flows is estimated to be significant, but with a puzzling sign (more liquid assets should be good in the face of capital flight).

These tests most likely do not suffer from a lack of statistical power due to noisy firm data. One could argue that poor accounting standards introduce substantial noise into these measures. On the other hand, a common argument is that poor standards introduce not noise, but systematic biases such as exaggeration of profits. Either way, it is clear from the results that accounting variables, in first-order form, are significant predictors of the various investment variables. This indicates that the data are not so error prone. It is only when we look for interactions of short-term exposure with macro shocks that we generally do not find significant effects.

III.C Regional Comparisons

The non-effect of short-term exposure from above is seen in our regional analysis as well. Table 4 contains regression results for each region and for each investment variable. The regression specification is as in Column (3) of Table 3, with a lagged dependent variable and with total liabilities and current assets entering in first-order form and as interactions with the net capital account. In no case do we estimate a significant (and correctly signed) effect of $(exp^{ST} \times \Delta k)$ on investment.

Regional differences do emerge on some of the other interactions. Using the samples from Latin America and from the additional emerging markets, we estimate all of interaction effects to be insignificantly different from zero for current investment. On the other hand, several interaction

[2] Approximately fifty percent of the firm/year observations are characterized by some sales of fixed assets.

terms are estimated to be significantly different from zero for the East Asian sample. The interaction of current assets with capital flows has roughly equal and opposite effects on capital expenditures and inventory investment. While the net effect is a statistical zero, it is noteworthy that some sort of shifting is apparently induced by $(exp^{ST} \times \Delta k)$. We also estimate a significant, positive effect of the interaction between liabilities and capital flows for several types of investment, which suggests that firms with higher leverage in East Asia were more vulnerable to capital flight.

IV Sensitivity Analysis

The result from above is not sensitive to a wide variety of changes in the econometric specification, as we show in this section. These alternative specifications include using different estimators and alternative measures of capital flows. Further, we show that the result for $(exp^{ST} \times \Delta k)$ is robust to the inclusion of control variables for access to external capital and changing relative prices.

IV.A Alternative Estimators

We estimate the effect of $(exp^{ST} \times \Delta k)$ using numerous alternative estimators, all of which deliver similar estimates of $(exp^{ST} \times \Delta k)$ to those above. These new results are seen in Table 5 and described in this subsection.

We begin with alternative computations for the standard errors using the ordinary least-squares (OLS) estimator. These estimates employ the specification from Table 3, Column 2, which includes first-order and capital-flow-interaction effects of short-term exposure, total liabilities, and current assets. Each Panel displays only the estimates on $(exp^{ST} \times \Delta k)$. (Note that the point estimates do not change in Panels A-D, only the standard errors.) Panel A contains the basic OLS standard errors, *i.e.*, assuming no heteroskedasticity and no intraclass correlation. Panel B reports Huber-White ("robust") standard errors that allow for heteroskedasticity. (These are the default throughout the present study.) Panel C allows for corrects the errors for the presence of correlated disturbances across firms within each country × year cell. Finally, in computing the standard errors, the estimator in Panel D allows for fairly generic correlational structures within firm. The size of the standard errors generally increases as we read down the Panels, but the pattern of significance is essentially the same.

These results are essentially unchanged if we add a one-period lag of the dependent variable. These estimates of the effect of $(exp^{ST} \times \Delta k)$ are shown in Panel E (which replicates parts of

Table 3). This provides a useful check for the above estimates insofar as firms experience persistent shocks.

When we control more flexibly for the predetermined variables, very little changes in our estimates. Above, we use linear terms to control for the first-order effects of the lagged accounting variable (exp^{ST}, total debt and current assets). In Panel F, we allow the effects of the predetermined accounting variables (short-term exposure, total debt, current assets) to be highly flexible by including them as polynomial of order ten. In effect, we are parametrically matching firms based on their $t-1$ characteristics. The estimates are qualitatively similar using this technique, with the major exception that the anomalous result for the disposal (sale) of fixed assets is no longer significantly different from zero.

Controlling for firm-level fixed effects does not generate estimates that favor the maturity-mismatch hypothesis. In Panel G, we add firm-specific effects to the specifications. Similar estimates are obtained, except for the contemporaneous response of capital expenditures to ($exp^{ST} \times \Delta k$) (for which the estimate is significant but opposite of the excepted sign). We combine the matching estimator with firm fixed effects in Panel H, and find uniformly insignificant effects of ($exp^{ST} \times \Delta k$) on all the studied investment outcomes. This includes an insignificant result for expenditures (versus Panel G, Column 1) and for disposal (versus the majority of the Panels above).

Finally, the addition of an autocorrelated error term yields substantially similar results. We allow for an autoregressive error of order one (AR(1)) at the firm level in the estimation of the fixed-effects model. These results are found in Panel I. The estimated standard errors tend to be larger than those found above, and the point estimates are similar. Consequently, none of the estimates of ($exp^{ST} \times \Delta k$) are significantly different from zero.

IV.B Alternative Normalizations

Above we normalized the accounting variables by lagged total assets, but we obtain similar results for ($exp^{ST} \times \Delta k$) with alternative normalization schemes. These new estimates are found in Table 6. Panel A repeats the baseline estimates from above. In Panel B, we consider a broader measure of (lagged) firm value: outstanding debt plus market capitalization. In Panel C, we normalize instead by the lagged capital stock (or stock of inventories in the case of inventory investment). In Panels D and E, we scale the independent variables by lagged assets and firm value, respectively, but

normalize the investment variables with the lagged stocks as above.[3] In no instance do we estimate an effect of $(exp^{ST} \times \Delta k)$ that is consistent with the maturity-mismatch hypothesis. Renormalizing the investment variables by lagged capital stocks does render insignificant, in most instances, the interactions of the net capital account with current assets.[4]

IV.C Alternative Measures of Capital Flows

In this subsection, we estimate the effect of $(exp^{ST} \times \Delta k)$ using interactions of exposure with various alternative macroeconomic variables.

We start by looking at the differential effects on firm level investment of capital inflows net of foreign direct investment (FDI). We exclude foreign direct investment to control for the possibility that "fire sale FDI" takes place during a balance of payment crisis. So far we have associated an international liquidity shock with low foreign investment and the exiting of investors from the crisis economy. However, a liquidity crisis could also consistent with an inflow of foreign capital, in the form of mergers and acquisitions (M&A), that seeks to take advantage of profitable investment opportunities in the hands of cash-strapped domestic corporations[5]. We report these results in Panel B of Table 7. As in our baseline specification, we fail to find a significant differential effect of short-term exposure on the response of investment to capital flows.

Many of the capital-flow reversals in our sample coincide with periods of high domestic interest rates, a result of dogged defenses of the exchange rate by domestic monetary authorities. The result is that firms wishing to roll-over short term liabilities are restricted by the lack of both international and domestic liquidity. To capture this effect we introduce a measure of shocks to the supply of domestic credit in our investment specifications. Because data on interest rates is patchy, and has the added complication of having to separate real rates from expected inflation, we proxy local credit conditions using the change in domestic credit over lagged GDP. We start by estimating our baseline specification and replacing net capital inflows with changes in credit. The results of this estimation are reported in Panel C. Next, in Panel D, we include both the interaction of exposure with capital inflows and changes in private credit. In all cases we fail to obtain coefficient estimates

[3] We also reproduce these specifications, but re-weight the data by the lagged fixed-capital or inventory stock, as appropriate. Results are similar.

[4] We also replicated Table 6 using the "exposure only" specification seen in Columns 1, 4, 7 and 10 of Table 3. The significant estimates of $(exp^{ST} \times \Delta k)$ in those columns disappear when the lagged stock is used to normalize the accounting variables.

[5] Aguiar and Gopinath (2002) find that there was a substantial increase in M&A activity in South East Asia between 1996 and 1998. See also Krugman (1998).

on the ($exp^{ST} \times \Delta k$) interaction that are statistically significant.

As an additional test of the robustness of our main results, we repeat the specifications reported in the previous three panels normalizing the measures of capital flows and changes in private credit to zero mean and unit standard deviation by country. The results (reported in Panels E through G of Table 7) are qualitatively identical to the results presented in Panels A though C.

Finally, in Panels H and I we report the estimated coefficients on the interaction between exposure and the spread over US T-Bills of the JP Morgan EMBI bond index. Panel H uses the country specific spread (when available), while Panel I uses the aggregate EMBI spread, which should be taken a proxy of financing conditions for emerging markets in general. In both cases the sample size drops: in the first case because EMBI data is only available for a sub-sample of countries, in the second because data is only available after 1991. Consistent with our previous results, we fail to find a significant negative coefficient on any of the interactions between exposure and either of the EMBI spreads.

Could it be that the relationship between capital inflows and short-term exposure is non-linear, so that it is only in periods of low inflows (or capital-flow reversals) that exposed firms fare worse than their counterparts? We explore this question in the rest of Table 7.

We start with an indicator variable for periods in which capital inflows are below the country median over the period 1985–2002 (*low* inflows). In Panel J we interact this indicator variable with short term exposure, while in Panel K we interact the indicator variable with ($exp^{ST} \times \Delta k$), thus allowing for an asymmetrical effect of capital inflows. The next two panels replicate this exercise, but define the indicator dummy with respect to the country mean minus one standard deviation (*crisis* inflows). For most investment variables (current and next period) we obtain statistically insignificant coefficients for the interactions of short term exposure with the dummy variables and for the two interactions of exposure with net capital inflows. One exception are the capital disposal variables, which display the familiar anomalous coefficients, although these anomalies seem to obtain in periods of inflows in the interactive models.

Next, we consider investment behavior around particular episodes of capital-account reversals and fail to find a significant effect of short-term exposure following capital flight. These episodes are enumerated in Table 8. Table 9 shows the result of estimating the differential effects of the Calvo et al (2004) measure of sudden stops. Instead of pooling the whole sample, we concentrate on the fall in investment in the vicinity of the sudden-stop episodes. To do so we run a series of

regressions in which we include observations on firm investment from $t-1$ (the period prior to the sudden stop) and either t, $t+1$ or $t+2$. Note that each regression has observations from only two periods. The key variable in this specification is the interaction between the post dummy (which takes on a value of one in t, $t+1$ or $t+2$) and short term exposure. For this specification, we expect a *negative* coefficient estimate on $((exp^{ST}) \times \text{Post})$ in the capital-expenditure and inventory regressions, and positive signs in the asset-disposal equations. The odd-numbered columns report estimates of specifications with exp^{ST}, $(exp^{ST} \times \Delta k)$, and Post only, while the even-numbered columns also include interactions between the post dummy and lagged liabilities and between the post dummy and lagged current assets.

We find that, following a sudden stop, the behavior of capital expenditures in firms with high exposure is, in almost all cases, statistically indistinguishable from the behavior of firms with low exposure (columns 1–6). This result holds for the full sample, for sudden stop episodes in Asia and for those in Latin America. The only ($exp^{ST} \times$ Post) coefficient that is statistically significant in both specifications is that for period $t+2$ in Latin America, however, the estimated coefficient is the opposite sign to what we expected. In turn, for inventory investment, disposal of fixed assets and the disposal dummy, either the coefficients on ($exp^{ST} \times$ Post) become insignificant once the additional controls are included, or the estimated coefficients have opposite signs to what we expected.

All in all the results presented in this subsection confirm our main results: we fail to find significant, robust differences in the response of investment to international liquidity shocks across firms with different levels of short-term exposure.

IV.D Additional Controls

Even though episodes of capital flight are times in which relative prices change markedly, we argue that this is unlikely to contaminate our results. To a first approximation, this should load onto the macroeconomic variables (not the interaction terms) since all the firms in the economy face these same price changes. On the other hand, firms with more exp^{ST} might face differential changes in prices, a hypothesis we consider (and discard) in this subsection.

One possibility arises because changing credit-market conditions presumably have effects that work through channels other than exp^{ST}. If short-term-exposed firms also have differential access to international (or domestic) capital, then our results may come from having omitted this "access"

variable in the estimates of investment responses to capital flows. We assess this hypothesis in Table 10 by constructing proxies for capital access and controlling for them (interacted with Δk) in the investment regressions. In Panel A, we interact whether the firm had an ADR account in year $t-1$ with subsequent capital flows. There is mixed evidence on the effect of this interaction, but its inclusion does not materially alter the estimates of $(exp^{ST} \times \Delta k)$. Similarly in Panels B and C, respectively, we control for the firm having an active listing in the local stock market, or a cross listing elsewhere. Again, the crucial new control is the interaction of these dummies with the capital account. As with the ADRs, when we include these controls the estimates of $(exp^{ST} \times \Delta k)$ change very little. A credit crunch might also have a greater impact on smaller firms. However, the inclusion of controls for firm size hardly changes the result for $(exp^{ST} \times \Delta k)$, as seen in Panel D. An interesting additional result is that small firms appear to be more vulnerable to capital flight. Finally, we include interactions of industry (SIC1) dummies with the net capital account. As seen in Panel E, we obtain similar estimates of the effect of short-term exposure when including these additional controls.

Another possibility is that short-term and long-term-indebted firms systematically different in the exchange-rate sensitivity of their non-financial prices, perhaps because of differing propensities across sectors to issue short-term debt. Since the capital account and the exchange rate often move together, there is potentially an omitted variable: the change in profit opportunities resulting from the exchange-rate movement. We consider this hypothesis in Table 11. As a first approximation for measuring changing profit opportunities we include earnings (measured by EBITDA) in our baseline specification. Second, in Panel B, we include the interactions of exposure, current assets and total liabilities with changes in the real exchange rate. Next, Panel C, includes interactions between changes in the real exchange rate and 1 digit SIC dummies, while Panel D includes interactions between a dummy for exporting firms and the change in the real exchange rate. Finally, Panel E combines these last two sets of interactions in one specification. Moreover, we also find that detailed time-varying sectoral controls[6] (Panel F), which do not substantially affect the coefficient estimate on $(exp^{ST} \times \Delta k)$ either.

Similarly, the short-term exposure of the firm could be correlated with its currency composition of debt, because of so called "original sin" (Eichengreen and Hausmann, 1999). According to this view, firms in emerging markets can either borrow short term or in a foreign currency. This being

[6]These include indicators for country × year × SIC1.

the case, firms face a tradeoff between currency risk and interest-rate/rollover risk. It should be noted that we do not know the currency composition of the debt, so we cannot directly test for the importance of the interaction of foreign-currency debt (D^*) with the exchange rate (Δe). Instead, our approach is to add the interaction ($exp^{ST}_{i,t-1} \times \Delta e_{jt}$) to the regression. Note that we do not promote this variable as the definitive proxy for currency-mismatch effects. What we argue is that it serves to determine whether the earlier estimates are contaminated by the suggested omitted-variable bias.[7] As seen in Panel B of Table 11, the inclusion of interactions among the debt variables and Δe does not yield substantially different estimates of the effect of ($exp^{ST} \times \Delta k$). On the other hand, the question of the interaction of maturity and currency mismatches during a crisis is explored directly by Bleakley (2003). In a sample of Latin American firms, he finds a negative correlation between short-term and foreign-currency debt. However, the omission of currency composition of debt is found not to affect the conclusions regarding the effects of short-term exposure.

Belonging to business groups and conglomerates (such as the chaebol in Korea or grupos in Mexico) provides access to an internal capital market, which may distort the choice of debt maturity and confound the effect of this debt in periods of capital outflow. To assess how this affects our estimates of ($exp^{ST} \times \Delta k$), we assemble additional information on the ownership characteristics of the corporations in our sample.[8] For the Latin American subsample, we use the *Corporate Affiliations* database (Lexis-Nexis, 2003) to measure ownership characteristics. The first category, labelled "subsidiary" in the Table, denotes subsidiaries or joint ventures. A second category is created for affiliates, and a third for corporations with diluted ownership. The omitted category is for those firms that do not appear in the *Corporate Affiliations* database. In the East Asian subsample, we use the classification scheme for ownership described by Claessens, Djankov, and Lang (2000).[9] The first category is for those corporations that are widely held, *i.e.* that do not have significant concentration of ownership. We create three additional categories for firms affiliated with banks, families, and governments. Finally, the omitted category is for those firms left unclassified

[7] Consider two cases. First, suppose that $corr(D^*_{ijt-1}, exp^{ST}_{i,t-1}) = \alpha \neq 0$. Upon inclusion of $exp^{ST}_{i,t-1} \times \Delta e_{jt}$ in the regression, the component of $D^*_{ijt} \times \Delta e_{jt}$ that is not correlated with $exp^{ST}_{i,t-1} \times \Delta e_{jt}$ remains in the error, but does not cause a bias in the coefficient on ($exp^{ST}_{i,t-1} \times \Delta k_t$). On the other hand, suppose that $corr(D^*_{ijt-1}, exp^{ST}_{i,t-1}) = 0$. In this case, there is no omitted variable bias to begin with, although including this measure might improve the precision of the estimates. In either case, adding ($exp^{ST}_{i,t-1} \times \Delta e_{jt}$) corrects any omitted-variable bias arising from the correlations among $\left\{D^*, exp^{ST}\right\}$. But note that ($exp^{ST}_{i,t-1} \times \Delta e_{jt}$) need not be correlated for ($D^*_{ijt} \times \Delta e_{jt}$) for this test to be informative.

[8] It should be noted that these variables are from a single point in time. In East Asian, information is from 1996, while in Latin America it is from 2003.

[9] We thank Todd Mitton for providing with these data.

by Claessens *et al.*. For both regions, the categories are mutually exclusive.

Controlling for affiliations does not affect our main result for maturity mismatch. In Table 12, we include these ownership indicators in the regression, interacted with the capital account. Because the data are different by region, we run the analysis separately for Latin America and East Asia. In Panels A and C, we present the baseline results for $(exp^{ST} \times \Delta k)$. In Panels B and D, we show results from regressions that allow for different sensitivities to the capital account across ownership classes. While there is some evidence that corporations with group affiliations respond differently to the capital account, the inclusion of these controls does not significantly affect our estimates of $(exp^{ST} \times \Delta k)$.

V Effect on the Net Worth

We discuss the response of financial and income variables to $(exp^{ST} \times \Delta k)$ in this Section. A plausible explanation for the results might have been that firms had successfully managed the risks associated with short-term exposure through financial derivatives, perhaps. What we show in this Section contradicts this notion. Short-term-exposed firms incur higher debt and interest obligations going forward. There is also evidence of liquidation of assets at bargain prices In all, we estimate a substantial transfer of wealth out of firms with more exp^{ST}.

V.A Financing Variables

On average, short-term-exposed firms see their financial positions deteriorate with a capital outflow. This is consistent with the maturity-mismatch hypothesis in that more short-term exposure means more exposure to interest-rate shocks. We also find that the short-term-exposed firms did not choose (or were unable) to repay their obligations that came due during the capital outflow. Instead, they absorbed the shock by taking on higher interest and debt obligations.

The results for the full sample are found in Table 13. In the current year (*i.e.*, contemporaneous with the capital account), there is evidence of significant effects of $(exp^{ST} \times \Delta k)$ on interest payments, but less robust evidence of an effect on total debt or new issuances of debt. In the year following the aggregate capital flow, we estimate a strong relationship between $(exp^{ST} \times \Delta k)$ and total debt. In other words, short-term-exposed firms saw significant increases in their indebtedness in the aftermath of a capital outflow from the home country. We also estimate statistically significant reductions in the gross issuance of new debt among short-term exposure firms following capital

outflows, but at the same time less debt is retired, and as a result there is no effect of $(exp^{ST} \times \Delta k)$ on net issuances.

V.B Income Statement

In this subsection, we address the effects of short-term exposure on firm income. We find that during capital outflows firms with higher short-term exposure experience a larger drop in non-operating income. Part of this is mechanical, and operates via higher interest rate expenses. Another part, however is due to fall in non-interest components of the non-operating income. Evidence from a sub-sample of firms for which data is available suggests that part of the fall is due to losses stemming from asset sales. Firms with higher short term exposure are forced to hold a "fire sale" of assets in order to deal with liquidity problems.

The results for the full sample are reported in panel A of Table 14. Each cell of the table reports the estimated coefficient on the $(exp^{ST} \times \Delta k)$ interaction for a regression in which the dependent variable is a component of the income statement. In the first row, the dependent variable is operating income, *i.e.*, that income which is directly related to the firm's main line of operation. As reported, we fail to find a positive coefficient on the $(exp^{ST} \times \Delta k)$ interaction for either contemporary or period-$t+1$ operating income. Where we do find a positive and significant coefficient is for period-t non-operating income: firms with higher short-term exposure see a larger deterioration in this category of income following a capital outflow. The next three rows report results for different components of non-operating income. The first is income from interest bearing assets or equity holdings of non-subsidiaries. We find no differential response to an outflow across different levels of exposure for this variable. The second is accrued interest expenses. As discussed in the previous subsection, firms with more short-term debt are more exposed to volatile interest rates. The result is higher interest costs in periods of outflows. The third category is a broad income category that includes, amongst other things, losses from sale of assets. We obtain a positive and significant coefficient on the $(exp^{ST} \times \Delta k)$interaction for this category of income.

To determine what may be driving the positive result for the other-non-operating-income category, we repeat our estimation for the sub-sample of firms for which data on the loss from sale of assets is available. This component of the income statement measures differences between the accounting value of assets and the price at which they were sold. The estimated coefficient indicates that firms with higher short-term exposure experience higher losses due to asset sales in periods

of outflows, and that in the sub-sample, approximately 25% of the period t effect of exposure on other-non-operating-income is due to these losses. As our previous results for total value of liquidation failed to find a negative differential effect, we interpret this result as evidence of higher losses per unit sold. Firms with higher exposure are more likely to "fire-sell" their assets in periods of capital-flow reversal.

The last two rows of panel A report the estimated coefficients on $(exp^{ST} \times \Delta k)$ when measures of cash flow replace income as the dependent variable. The results are in line with the income statement results: we find a non significant coefficient on the $(exp^{ST} \times \Delta k)$ interaction for cash flow from operations but a positive and significant coefficient for earnings before interest, taxes, depreciation and amortization (EBITDA).

VI Discussion of Average Investment

In this section we explore, and discard, two alternative hypotheses for our lack of results. The first alternative explanation for the lack of a differential response to capital outflows across short term exposure is that the variance of our LHS variables collapses to zero around these episodes. Simply put, if all firms invest zero, then it will be impossible to find differences across categories. Although the significant coefficients on many interaction variables in previous specifications suggest that this is not the case, we explore this hypothesis in this section directly by looking at the dispersion of investment around episodes of capital flow reversal. The second explanation is that our sample of firms is not representative, so that the large collapse in investment observed during these "crises" occurs only elsewhere in the economy, specifically in small unlisted firms. We find that this is not the case. Indeed, as shown below, the elsaticity of aggregate investment in our sample to capital flows is remarkably similar in magnitued to the elasticity of private gross fixed capital formation as reported by national accounts.

VI.A Changes in the Distribution of Investment

In Figure 2, we see how the cross-firm distribution of investment changed during the crisis episodes that qualified as "sudden stops"[10]. Panel A contains estimates of the probability density function of investment (defined as the sum of all investment components above), while Panel B plots the

[10]These episodes are specified in Table 8.

time path of the first and second moments. In the notation of the Figure, a crisis starts in year t. The distribution of investment is quite similar in years $t-1$ and $t-2$. In the year of the sudden stop (*i.e.*, year t), the investment distribution shifts somewhat to the left, and is slightly more dispersed. Going forward, investment is dramatically lower and the distribution is tighter around the mean in years $t+1$ and $t+2$. In this time span, average investment declines by more than 50%, while the standard deviation drops by around 15%.

In light of this evidence, can the results from Section III be explained as being because "no one was investing anyway" in these episodes?[11] We suggest that they cannot. First, dispersion of investment actually rises in the year in which the sudden stop in capital flows (and corporate investment) begins. Second, while the cross-firm dispersion in investment is lower in the two years following the crises, the standard deviation is only lower by some fifteen percent of the starting value.

VI.B Corporate versus Aggregate Response

While the focus of the present study is the corporate sector, it is worth considering how the full economy's investment responds to capital flight. Large, publicly traded firms generally have better access to external capital, and it is natural to wonder whether this advantage helps them endure the credit-market shocks better than the small and medium enterprises in the same economy. Moreover, if, in the face of these shocks, the large corporations turn to domestic sources of credit, their retrenchment might displace the smaller firms. On the other hand, it is precisely the large corporations that are more exposed to international shocks because they are more likely to participate in international capital markets.

We construct comparable measures of investment for both our sample and the broader economy. We focus on purchases of equipment and structures, which correspondes to fixed-capital purchases from the cash-flow statement in our sample and to gross fixed-capital formation in the national accounts (and in the WEO). Because the strategy from above of normalizing by lagged assets is not feasible for the aggregate data, we consider yearly logarithmic changes in the CPI-deflated levels of investment, and thereby construct a time series of growth rates for each country represented in our sample.

We regress these two investment variables on capital flows for the panel of countries in our

[11] We are grateful to Peter Garber for suggesting this as a possible explanation for our results.

data. These results are found in Table 15. In Panel A, the dependent variable is the fixed-capital investment of the entire private sector. In Panel B, capital expenditures from our sample of publicly traded firms are on the left-hand side.[12] These resulting estimates are of similar magnitude (not simply the same sign) for the two series. The major systematic difference that emerges is that the corporate sector tends to have a stronger contemporaneous response to the capital account, while the broader private sector has a larger response in the following year. This is consistent with the smaller firms being exposed to international shocks, with a delay, through the banking system. Nevertheless, the total effect over time of the capital account is similar across sectors.

VII Conclusions

Using micro data from emerging-market corporations, we examine the response of investment to aggregate capital flows. We do not find robust and statistically significant differences in the investment response among firms with very different levels of potential exposure to the flight of capital from the country. This evidence casts doubt on the importance of corporate-level maturity mismatch in these countries.

We obtain a series of additional results that we believe merit further research. First, we find that some categories of firms do experience large drops in investment during capital-account reversals. This is the case of highly leveraged firms in East Asia, and the smaller firms throughout our sample. Second, we find that short-term exposure does have effects on firm outcomes. In periods of capital outflows those firms in our sample with higher exposure: accumulate more debt, incur higher interest costs, have lower non-operational income, and sell-off assets with larger mark-downs. Many of these results suggest important transfers of wealth within the economy (and potential across borders as well). We also find that firm with higher exposure are less likely to access new debt financing following a slow down in capital inflows, suggestting they are forced to obtain financing for their production and investment elsewhere, be it internal or by seeking external sources of equity financing.

[12] While the latter series is a component of the former, it does not represent more than twenty percent of investment in the private sector in any country we study.

References

Aguiar, M. and G. Gopinath, G. (2002). "Fire-Sale FDI and Liquidity Crises". Mimeo, University of Chicago.

Bleakley, H. (2003). "Descalce de plazos y crisis financiera: evidencias en las empresas de América Latina." *Perspectivas: Análisis de temas críticos para el desarrollo sostenible*, December 2003, 1(2):9-28.

Calvo, G. A., A. Izquierdo and L. Mejia. (2004). "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects." NBER Working Paper No. 10520.

Cowan, K. and J. de Gregorio (1998). "Exchange Rate Policies and Capital Account Management: Chile in the 1990s." In Glick, R. (ed.), *Managing capital flows and exchange rates: Perspectives from the Pacific Basin.* Cambridge; New York and Melbourne, Cambridge University Press: 322-55.

Chang, R. and A. Velasco (1999). "Illiquidity and Crises in Emerging Markets: Theory and Policy." *NBER Macroeconomics Annual*, 1999.

Claessens, S., S. Djankov and L. Lang (2000). "The separation of ownership and control in East Asian Corporations." *Journal of Financial Economics* 58: 81-112.

Detrgiache, E. and A. Spilimbergo (2002). "Empirical Models of Short-Term Debt and Crises: Do They Test the Creditor-Run Hypothesis?" Mimeo, International Monetary Fund, May.

Diamond, D. W. and P. H. Dybvig (1983). "Bank Runs, Deposit Insurance, and Liquidity." *Journal of Political Economy* 91(3): 401-19.

Eichengreen, B. and R. Hausmann (1999). "Exchange Rates and Financial Fragility." NBER Working Paper 7418.

Everhart S. and M. Sumlinski (2001). "Trends in Private Investment in Developing Countries Statistics for 1970-2000 and the Impact on Private Investment of Corruption and the Quality of Public Investment". IFC discussion Paper 44. Data available online at http://www.ifc.org/ifcext/economics.nsf/Content/DataSets.

Fazzari, S. M., R. G. Hubbard and B. Petersen (1988). "Financing Constraints and Corporate Investment." *Brookings Papers on Economic Activity* 0(1): 141-95.

Gallego, F. and N. Loayza (2000). "Financial Structure in Chile: Macroeconomic Developments and Microeconomic Effects." Working Paper 75, Central Bank of Chile.

Gelos, G. and A. M. Werner (1998). "La Inversión Fija en el Sector Manufacturero Mexicano 1985-94: El Rol de Los Factores Financieros y El Impacto de Liberalización Financiera." Documento de Investigación No. 9805, Banco de México.

Hoshi, T., A. Kashyap and D. Sharfstein (1991). "Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups." *Quarterly Journal of Economics* 106(1): 33-60.

Hubbard, R. G. (1997). "Capital-Market Imperfections and Investment." NBER Working Paper: 6200.

International Monetary Fund (2004a). *International Financial Statistics.* Electronic database, June 2004.

— (2004b). *World Economic Outlook Database.* Electronic database.

Lang, L., E. Ofek and R.M Stulz (1996). "Leverage, Investment, and Firm Growth." *Journal of Financial Economics* 40(1): 3-29.

Lexis-Nexis (2003). *Corporate Affiliations Plus.* Electronic database, June 2003.

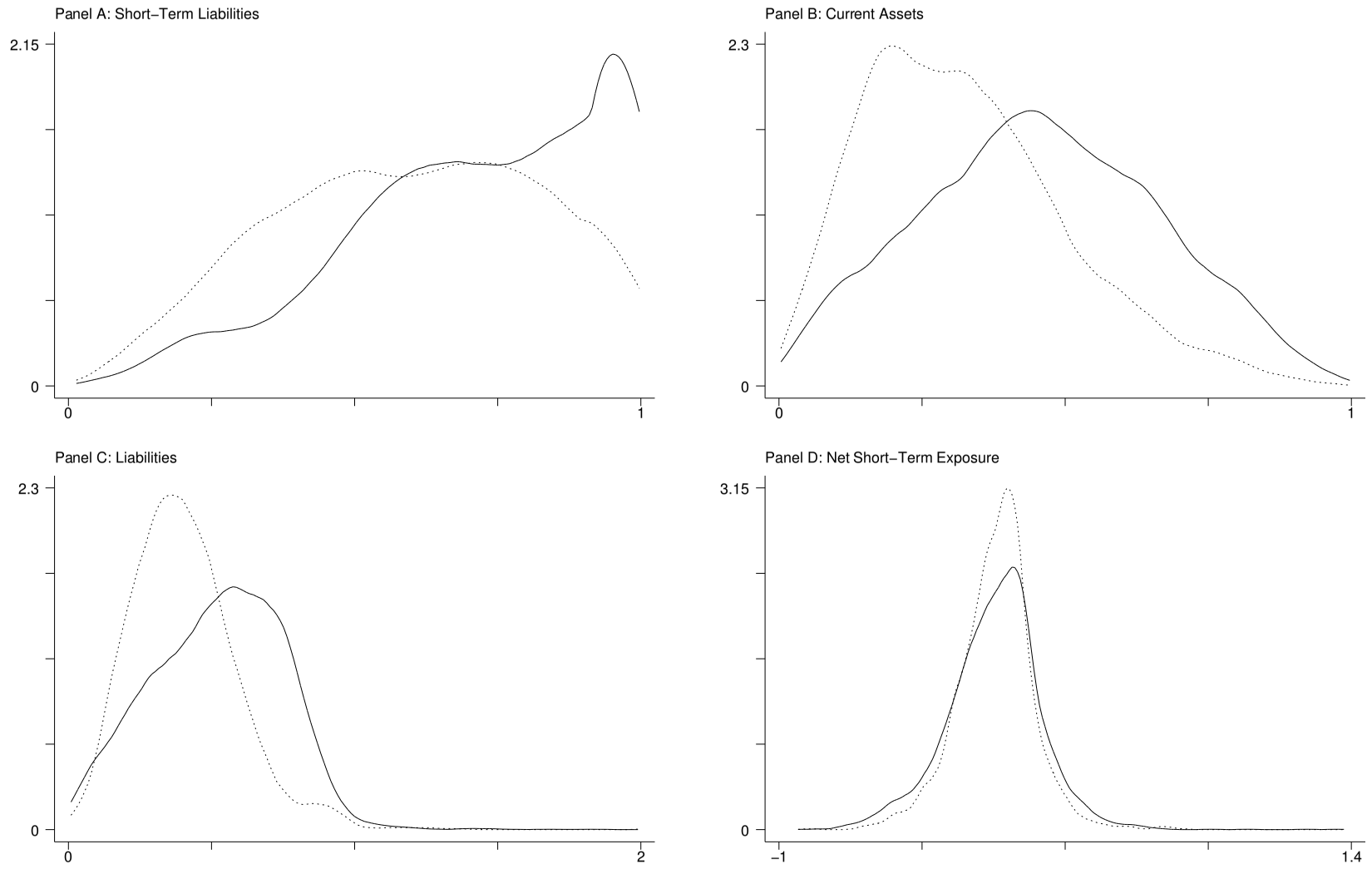
Love, I. (2001). "Financial Development and Financing Constraints: International Evidence from the Structural Investment Model." World Bank Working Paper 2694.

McKinnon, R. I. and H. Pill (1998). "The Overborrowing Syndrome: Are East Asian Economies Different?" In R. Glick (ed.), *Managing capital flows and exchange rates: Perspectives from the Pacific Basin.* Cambridge; New York and Melbourne, Cambridge University Press: 322-55.

Radelet, S. and J. D. Sachs (1998). "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects." *Brookings Papers on Economic Activity* (1): 1-74.

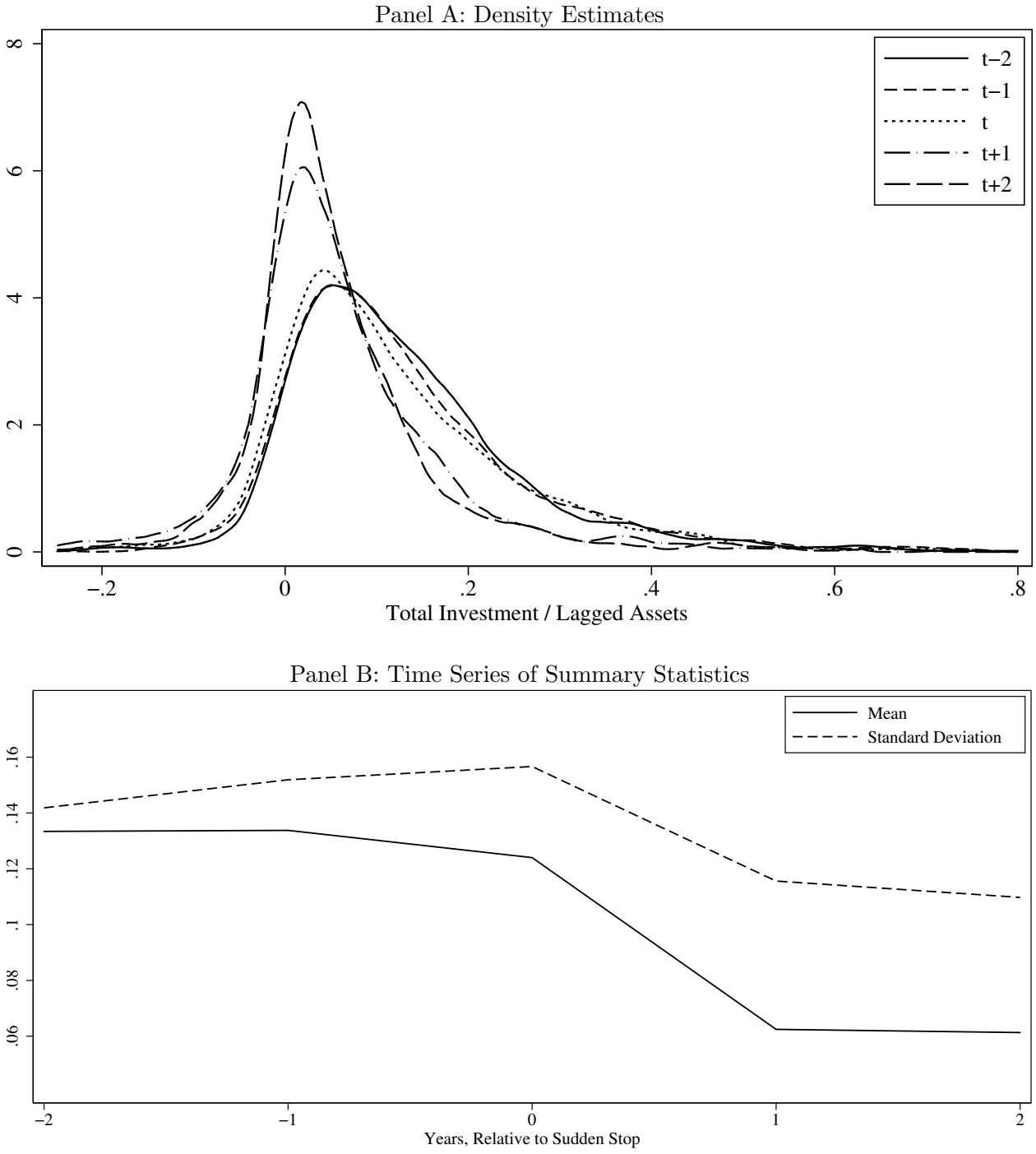
Thomson Financial (2003). *Worldscope Database.* Electronic database, May 2003.

Figure 1: Density Estimates of Balance Sheet Variables



Notes: Each Panel contains kernel estimates of probability density functions for the indicated variables for prior to 1996. The solid line is for the sample of Asia corporations, and the dashed line represents the Latin American sample. (See text for sample descriptions.) Short-term liabilities are expressed as a fraction of total liabilities. All other variables are normalized by total assets. Net short-term exposure is defined as the normalized difference between short-term liabilities and current assets.

Figure 2: Changes in the Distribution of Investment Following A Sudden Stop



Notes: Total investment is the sum of capital expenditures, (minus) disposal of fixed assets, and inventory investment. Investment is normalized by lagged assets. The sample is restricted to firms in those countries that experienced "Sudden Stop" episodes. (See text for further sample and variable descriptions.) Panel A contains estimates of probability density functions in the years before, during, and after a sudden stop. Each curve is an estimate from a particular year (relative to episode), as indicated by the line style. The x-axis is total investment over lagged assets and the y-axis plots the estimated density. Panel B contains a plot of the movement of the mean and standard deviation of total investment around sudden-stop episodes. The x-axis is the number of years relative to the initial onset of the sudden stop, while the y-axis plots the indicated sample moments for the indicated year.

Table 1: Sample Coverage

Principal Location of Firm	Year of Observation																						Totals for all years:
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
East Asia																							
Indonesia										2	7	67	72	77	79	103	115	120	122	114	182	101	1161
South Korea	16	18	20	20	22	23	19	21	80	113	104	107	118	172	204	226	261	280	353	646	698	354	3875
Malaysia	26	28	27	27	33	38	38	48	54	60	68	120	144	151	163	229	274	293	294	318	512	660	3605
Philippines									4	4	7	22	32	35	37	59	68	64	63	68	112	46	621
Thailand								2	4	13	25	81	134	175	183	196	212	209	200	197	300	305	2236
Latin America																							
Argentina							3	9	9	9	9	19	24	28	30	30	39	42	57	72	76	68	524
Brasil								52	56	60	59	79	82	87	103	134	135	148	172	320	311	173	1971
Chile						1	3	16	19	22	24	40	42	49	56	61	67	71	96	147	143	111	968
Colombia								12	12	13	10	15	19	21	22	23	23	22	22	22	22	4	262
Mexico	17	20	22	22	27	28	29	33	33	34	34	50	63	67	74	75	78	82	116	129	124	116	1273
Peru								2	3	3	3	6	17	22	17	17	28	29	35	51	60	43	336
Venezuela								1	1	3	3	6	8	9	9	10	11	10	17	23	19	5	135
Other Emerging Markets																							
Israel													22	29	29	26	32	44	48	62	88	52	432
Turkey								2	10	19	23	26	31	41	40	44	55	74	93	117	117	276	968
South Africa					74	83	81	98	115	129	127	131	128	144	149	154	152	168	357	390	341	17	2838
Totals for all countries	59	66	69	69	156	173	173	296	400	484	503	769	936	1107	1195	1387	1550	1656	2045	2676	3105	2331	21205

Notes: Each cell indicates the number of firm observations containing valid data on short-term exposure for the previous year and valid capital-account data for the firm's home country.

Table 2: Descriptive Statistics

	Balance Sheet Variables				Measures of Investment		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Countries:	Total Liabilities	Short-term Liabilities	Current Assets	Short-term Exposure (c2)-(c3)	Capital Expenditures	Change in Inventory Stock	Disposal of Fixed Assets
East Asia	0.592	0.397	0.445	-0.048	0.077	0.005	0.008
	(0.357)	(0.311)	(0.200)	(0.342)	(0.119)	(0.062)	(0.023)
	[11486]	[11498]	[11498]	[11498]	[10187]	[10213]	[9016]
Indonesia	0.590	0.395	0.473	-0.078	0.097	0.008	0.009
	(0.333)	(0.317)	(0.207)	(0.372)	(0.148)	(0.073)	(0.026)
	[1161]	[1161]	[1161]	[1161]	[1042]	[1038]	[1031]
South Korea	0.704	0.416	0.478	-0.062	0.071	0.007	0.011
	(0.340)	(0.219)	(0.177)	(0.251)	(0.091)	(0.054)	(0.027)
	[3870]	[3875]	[3875]	[3875]	[3332]	[3454]	[2489]
Malaysia	0.494	0.385	0.441	-0.056	0.070	0.004	0.008
	(0.382)	(0.370)	(0.213)	(0.388)	(0.117)	(0.067)	(0.022)
	[3603]	[3605]	[3605]	[3605]	[3270]	[3229]	[3052]
Philippines	0.445	0.270	0.325	-0.054	0.105	0.001	0.005
	(0.281)	(0.226)	(0.197)	(0.263)	(0.185)	(0.047)	(0.022)
	[621]	[621]	[621]	[621]	[604]	[577]	[552]
Thailand	0.600	0.421	0.414	0.007	0.080	0.004	0.005
	(0.375)	(0.357)	(0.213)	(0.396)	(0.122)	(0.063)	(0.018)
	[2231]	[2236]	[2236]	[2236]	[1939]	[1915]	[1892]
Latin America	0.458	0.263	0.332	-0.069	0.074	0.005	0.005
	(0.279)	(0.221)	(0.189)	(0.248)	(0.099)	(0.046)	(0.020)
	[5466]	[5469]	[5469]	[5469]	[4809]	[4944]	[3772]
Argentina	0.439	0.279	0.341	-0.061	0.077	0.001	0.003
	(0.229)	(0.208)	(0.197)	(0.264)	(0.099)	(0.049)	(0.015)
	[524]	[524]	[524]	[524]	[449]	[466]	[367]
Brazil	0.518	0.308	0.333	-0.025	0.073	0.006	0.004
	(0.357)	(0.278)	(0.199)	(0.303)	(0.105)	(0.047)	(0.018)
	[1968]	[1971]	[1971]	[1971]	[1742]	[1842]	[1350]
Chile	0.379	0.193	0.304	-0.112	0.087	0.006	0.009
	(0.193)	(0.128)	(0.187)	(0.161)	(0.106)	(0.034)	(0.025)
	[968]	[968]	[968]	[968]	[847]	[830]	[691]
Colombia	0.392	0.216	0.316	-0.100	0.054	0.005	0.008
	(0.228)	(0.166)	(0.191)	(0.127)	(0.068)	(0.048)	(0.018)
	[262]	[262]	[262]	[262]	[238]	[251]	[216]
Mexico	0.465	0.250	0.346	-0.096	0.071	0.005	0.005
	(0.244)	(0.209)	(0.172)	(0.234)	(0.092)	(0.049)	(0.019)
	[1273]	[1273]	[1273]	[1273]	[1106]	[1122]	[837]
Peru	0.439	0.292	0.362	-0.070	0.066	0.007	0.007
	(0.241)	(0.184)	(0.186)	(0.221)	(0.105)	(0.054)	(0.024)
	[336]	[336]	[336]	[336]	[302]	[303]	[207]
Venezuela	0.333	0.201	0.303	-0.102	0.054	-0.008	0.006
	(0.153)	(0.108)	(0.161)	(0.185)	(0.061)	(0.027)	(0.024)
	[135]	[135]	[135]	[135]	[125]	[130]	[104]
Other Emerging Markets:	0.501	0.367	0.560	-0.193	0.108	0.002	0.008
	(0.241)	(0.180)	(0.220)	(0.199)	(0.134)	(0.068)	(0.022)
	[5706]	[5706]	[5706]	[5706]	[5303]	[5240]	[3859]
Israel	0.443	0.267	0.542	-0.274	0.067	0.010	0.007
	(0.209)	(0.134)	(0.240)	(0.262)	(0.059)	(0.053)	(0.018)
	[432]	[432]	[432]	[432]	[390]	[372]	[309]
Turkey	0.538	0.402	0.606	-0.204	0.133	-0.002	0.003
	(0.259)	(0.178)	(0.196)	(0.188)	(0.154)	(0.071)	(0.016)
	[3097]	[3097]	[3097]	[3097]	[2804]	[2773]	[2047]
South Africa	0.460	0.336	0.497	-0.161	0.082	0.005	0.015
	(0.219)	(0.190)	(0.246)	(0.200)	(0.114)	(0.065)	(0.028)
	[2177]	[2177]	[2177]	[2177]	[2109]	[2095]	[1503]

Notes: Each cell contains a summary statistic for sampled firms in the indicated country or region. The top cell in each group is the mean. The middle cell (in parenthesis) reports the standard deviation, and the bottom cell [in square brackets] indicates the number of observations. Variables (listed by column) are as described in the text. Short-term exposure in the difference between current liabilities and current assets. All variables are normalized by total assets.

Table 3: Investment and Short-Term Exposure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Dependent Variables:											
Independent Variables and Regression Statistics:	Capital Expenditures			Disposal of Fixed Assets			Disposal of Fixed Assets > 0			Inventory Investment		
	Panel A: Dependent Variables from the Current Year											
Interactions with Capital Flows:												
Net Short-Term Exposure x Net Capital Account	0.285 (0.054) ***	-0.051 (0.106)	0.014 (0.093)	0.045 (0.014) ***	0.053 (0.025) **	0.046 (0.025) *	0.197 (0.175)	-0.064 (0.387)	-0.042 (0.346)	-0.055 (0.033) *	0.001 (0.058)	0.035 (0.064)
Leverage x Net Capital Account		0.132 (0.103)	0.079 (0.084)		0.013 (0.021)	0.004 (0.022)		0.396 (0.338)	0.264 (0.304)		0.070 (0.048)	0.076 (0.054)
Current Assets x Net Capital Account		-0.251 (0.109) **	-0.180 (0.096) *		0.023 (0.022)	0.024 (0.024)		-0.140 (0.382)	-0.060 (0.350)		0.335 (0.060) ***	0.304 (0.064) ***
Controls:												
Net Short-Term Exposure	0.008 (0.003) **	-0.004 (0.005)	0.009 (0.005)	0.007 (0.001) ***	0.005 (0.002) ***	0.004 (0.002) ***	0.012 (0.010)	0.065 (0.020) ***	0.048 (0.018) ***	-0.010 (0.002) ***	0.001 (0.003)	-0.002 (0.004)
Leverage		-0.017 (0.004) ***	-0.022 (0.004) ***		0.004 (0.001) ***	0.003 (0.001) ***		-0.045 (0.016) ***	-0.049 (0.013) ***		-0.012 (0.002) ***	-0.011 (0.003) ***
Current Assets		-0.056 (0.006) ***	-0.015 (0.006) **		0.002 (0.001)	0.002 (0.001)		0.056 (0.020) ***	0.066 (0.018) ***		0.001 (0.003)	-0.003 (0.004)
Lagged Dependent Variable			0.271 (0.024) ***			0.183 (0.018) ***			0.384 (0.007) ***			-0.065 (0.014) ***
Regression Statistics:												
N	17653	17643	13942	14647	14639	11608	20102	20087	20023	17915	17903	14236
R^2	0.09	0.1	0.18	0.05	0.05	0.08	0.39	0.39	0.5	0.06	0.06	0.08

Note: Table continues on next page.

Table 3 (Continued): Investment and Short-Term Exposure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Dependent Variables:											
Independent Variables and Regression Statistics:	Capital Expenditures			Disposal of Fixed Assets			Disposal of Fixed Assets > 0			Inventory Investment		
	Panel B: Dependent Variables from the Following Year											
Interactions with Capital Flows:												
Net Short-Term Exposure x Net Capital Account	0.401 (0.088) ***	0.010 (0.162)	0.075 (0.134)	0.030 (0.012) **	0.044 (0.026) *	0.007 (0.026)	0.347 (0.173) **	0.261 (0.379)	0.302 (0.326)	-0.041 (0.037)	-0.031 (0.068)	-0.039 (0.072)
Leverage x Net Capital Account		0.220 (0.168)	0.120 (0.106)		0.002 (0.022)	0.017 (0.022)		0.184 (0.324)	-0.003 (0.280)		0.077 (0.062)	0.132 (0.064) **
Current Assets x Net Capital Account		-0.338 (0.146) **	-0.282 (0.119) **		0.008 (0.024)	0.002 (0.026)		-0.063 (0.372)	0.005 (0.327)		0.201 (0.069) ***	0.183 (0.072) **
Controls:												
Net Short-Term Exposure	0.007 (0.008)	0.003 (0.009)	0.022 (0.009) **	0.005 (0.001) ***	0.003 (0.002)	0.000 (0.002)	0.007 (0.009)	0.036 (0.018) **	0.009 (0.016)	-0.007 (0.002) ***	-0.002 (0.004)	-0.002 (0.005)
Leverage		-0.024 (0.008) ***	-0.028 (0.007) ***		0.005 (0.001) ***	0.004 (0.001) ***		-0.020 (0.014)	0.000 (0.012)		-0.006 (0.004) *	-0.005 (0.004)
Current Assets		-0.038 (0.009) ***	0.002 (0.014)		0.002 (0.002)	0.001 (0.002)		0.040 (0.018) **	0.016 (0.016)		-0.003 (0.004)	-0.006 (0.005)
Lagged Dependent Variable			0.411 (0.093) ***			0.171 (0.018) ***			0.443 (0.007) ***			-0.041 (0.018) **
Regression Statistics:												
N	14263	14257	11362	12222	12217	9862	20102	20087	20023	14425	14418	11598
R^2	0.05	0.05	0.14	0.05	0.05	0.09	0.49	0.49	0.61	0.06	0.07	0.07

Notes: Each column reports the results of an OLS regression. The dependent variables are as indicated above each column. Estimates of the effect of the independent variables are listed in each row. Also included in each regression are indicator variables for each country-year cell. Huber-White standard errors are given in parentheses. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. All accounting variables are scaled by the lag of total firm assets. The macroeconomic variable (net capital account) is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section 2.

Table 4: Regional Comparisons

	Samples and Dependent Variables:											
	Capital Expenditures			Disposal of Fixed Assets			Disposal of Fixed Assets > 0			Inventory Investment		
Independent Variables:	East Asia	Latin America	Other Countries	East Asia	Latin America	Other Countries	East Asia	Latin America	Other Countries	East Asia	Latin America	Other Countries
					Panel A: Dependent Variables from the Current Year							
Interactions with Capital Flows:												
Net Short-Term Exposure x	-0.025	-0.316	0.063	0.048	-0.121	0.126	0.144	0.242	-1.037	0.028	-0.039	0.327
Net Capital Account	(0.111)	(0.334)	(0.665)	(0.028) *	(0.089)	(0.150)	(0.411)	(1.017)	(1.842)	(0.074)	(0.221)	(0.424)
Leverage x	0.182	-0.061	-0.261	-0.003	0.075	-0.038	0.050	0.118	0.822	0.080	0.006	0.074
Net Capital Account	(0.098) *	(0.216)	(0.460)	(0.024)	(0.062)	(0.108)	(0.361)	(0.762)	(1.211)	(0.061)	(0.145)	(0.223)
Current Assets x	-0.276	-0.134	-0.193	0.026	-0.102	0.046	0.204	-0.222	-0.174	0.280	0.313	0.188
Net Capital Account	(0.114) **	(0.366)	(0.480)	(0.027)	(0.074)	(0.133)	(0.403)	(1.049)	(1.610)	(0.073) ***	(0.205)	(0.348)
Controls:												
Net Short-Term Exposure	0.009	0.033	-0.013	0.004	0.002	0.023	0.095	-0.030	-0.031	0.000	0.000	-0.015
	(0.007)	(0.014) **	(0.018)	(0.002) **	(0.004)	(0.006) ***	(0.024) ***	(0.035)	(0.056)	(0.005)	(0.008)	(0.012)
Leverage	-0.019	-0.042	-0.006	0.002	0.006	0.004	-0.100	0.007	0.103	-0.013	-0.006	-0.007
	(0.005) ***	(0.009) ***	(0.017)	(0.001)	(0.002) **	(0.004)	(0.018) ***	(0.026)	(0.042) **	(0.004) ***	(0.005)	(0.008)
Current Assets	-0.026	0.020	-0.031	-0.001	0.002	0.019	0.117	-0.035	-0.015	-0.010	0.011	-0.009
	(0.008) ***	(0.018)	(0.014) **	(0.002)	(0.003)	(0.004) ***	(0.025) ***	(0.037)	(0.048)	(0.005) **	(0.007)	(0.010)
Lagged Dependent Variable	0.262	0.305	0.257	0.133	0.251	0.237	0.291	0.523	0.501	-0.043	-0.090	-0.106
	(0.032) ***	(0.053) ***	(0.050) ***	(0.019) ***	(0.057) ***	(0.046) ***	(0.009) ***	(0.015) ***	(0.017) ***	(0.018) **	(0.028) ***	(0.031) ***
					Panel B: Dependent Variables from the Following Year							
Interactions with Capital Flows:												
Net Short-Term Exposure x	0.028	0.603	2.947	0.005	-0.053	0.377	0.436	-0.186	3.580	-0.022	-0.034	-1.180
Net Capital Account	(0.144)	(0.529)	(2.327)	(0.028)	(0.101)	(0.221) *	(0.389)	(0.855)	(1.881) *	(0.080)	(0.362)	(0.536) **
Leverage x	0.323	-0.785	-0.774	0.023	0.092	-0.407	0.078	0.084	-1.561	0.132	0.029	0.672
Net Capital Account	(0.104) ***	(0.407) *	(1.378)	(0.025)	(0.068)	(0.165) **	(0.329)	(0.607)	(1.252)	(0.073) *	(0.253)	(0.404) *
Current Assets x	-0.328	0.204	-0.314	0.001	-0.039	0.137	0.082	-0.349	3.070	0.148	0.665	-0.667
Net Capital Account	(0.123) ***	(0.548)	(1.645)	(0.029)	(0.084)	(0.175)	(0.377)	(0.860)	(1.710) *	(0.079) *	(0.285) **	(0.476)
Controls:												
Net Short-Term Exposure	0.027	0.018	-0.026	0.001	-0.010	0.015	0.050	-0.043	-0.020	0.001	-0.002	-0.024
	(0.010) ***	(0.023)	(0.057)	(0.002)	(0.005) **	(0.006) **	(0.021) **	(0.031)	(0.048)	(0.006)	(0.014)	(0.016)
Leverage	-0.019	-0.019	-0.084	0.003	0.009	0.005	-0.029	0.008	0.092	-0.007	-0.001	0.005
	(0.007) ***	(0.016)	(0.056)	(0.002) *	(0.003) ***	(0.005)	(0.015) *	(0.023)	(0.035) ***	(0.005)	(0.009)	(0.011)
Current Assets	-0.020	0.012	0.019	-0.002	-0.004	0.014	0.041	-0.041	0.014	-0.013	0.002	-0.012
	(0.011) *	(0.022)	(0.053)	(0.002)	(0.004)	(0.005) ***	(0.022) *	(0.032)	(0.042)	(0.006) **	(0.011)	(0.013)
Lagged Dependent Variable	0.297	0.408	0.732	0.151	0.154	0.233	0.370	0.523	0.522	-0.040	-0.075	-0.029
	(0.033) ***	(0.068) ***	(0.437) *	(0.021) ***	(0.040) ***	(0.050) ***	(0.010) ***	(0.015) ***	(0.016) ***	(0.023) *	(0.041) *	(0.036)

Notes: Each column reports the results of an OLS regression. The dependent variables are as indicated above each column. Estimates of the effect of the independent variables are listed in each row. Also included in each regression are indicator variables for each country-year cell. Huber-White standard errors are given in parentheses. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. All accounting variables are scaled by the lag of total firm assets. The macroeconomic variable (net capital account) is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 5: Alternative Estimators

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variables:							
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets > 0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:								
	Panel A: OLS, Gauss-Markov standard errors							
Net Short-Term Exposure x	-0.051	0.010	0.053	0.044	-0.064	0.261	0.001	-0.031
Net Capital Account	(0.111)	(0.216)	(0.025) **	(0.028)	(0.378)	(0.346)	(0.058)	(0.071)
	Panel B: OLS, Huber-White standard errors							
Net Short-Term Exposure x	-0.051	0.010	0.053	0.044	-0.064	0.261	0.001	-0.031
Net Capital Account	(0.106)	(0.162)	(0.025) **	(0.026) *	(0.387)	(0.379)	(0.058)	(0.068)
	Panel C: OLS, errors clustered on country x year							
Net Short-Term Exposure x	-0.051	0.010	0.053	0.044	-0.064	0.261	0.001	-0.031
Net Capital Account	(0.107)	(0.163)	(0.026) **	(0.023) *	(0.501)	(0.563)	(0.052)	(0.063)
	Panel D: OLS, errors clustered by firm							
Net Short-Term Exposure x	-0.051	0.010	0.053	0.044	-0.064	0.261	0.001	-0.031
Net Capital Account	(0.120)	(0.186)	(0.026) **	(0.026) *	(0.494)	(0.469)	(0.064)	(0.066)
	Panel E: OLS with lagged dependent variable							
Net Short-Term Exposure x	0.014	0.075	0.046	0.007	-0.042	0.302	0.035	-0.039
Net Capital Account	(0.093)	(0.134)	(0.025) *	(0.026)	(0.346)	(0.326)	(0.064)	(0.072)
	Panel F: Matching estimator using 10th-order polynomials in the accounting variables							
Net Short-Term Exposure x	-0.024	0.069	0.009	0.014	-0.217	0.121	0.041	0.037
Net Capital Account	(0.111)	(0.173)	(0.025)	(0.029)	(0.397)	(0.383)	(0.061)	(0.069)
	Panel G: Firm fixed effects, Huber-White standard errors							
Net Short-Term Exposure x	-0.343	-0.323	0.056	0.013	-0.337	0.250	-0.105	-0.114
Net Capital Account	(0.143) **	(0.231)	(0.028) **	(0.029)	(0.394)	(0.396)	(0.074)	(0.090)
	Panel H: Matching with firm fixed effects and Huber-White standard errors							
Net Short-Term Exposure x	-0.190	-0.190	0.043	0.000	-0.132	0.327	0.055	0.020
Net Capital Account	(0.149)	(0.255)	(0.030)	(0.032)	(0.420)	(0.421)	(0.079)	(0.091)
	Panel I: Firm fixed effects, AR(1) error							
Net Short-Term Exposure x	-0.161	0.125	0.041	-0.001	-0.029	0.182	-0.069	-0.125
Net Capital Account	(0.129)	(0.231)	(0.030)	(0.033)	(0.422)	(0.416)	(0.073)	(0.089)
Estimated AR(1) Coefficient	0.205	0.289	0.128	0.117	0.311	0.289	0.029	0.037

Notes: Each panel presents the results from a different estimator. The dependent variables are as indicated above each column. Estimates of the effect of net short-term exposure times the net capital account are listed in each cell. Independent variables in each regression are as in Table 3, Column 2, however reporting of the rest of the estimates is supressed. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. All accounting variables are scaled by the lag of total firm assets. The macroeconomic variable (net capital account) is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 6: Alternative Normalizations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variables:							
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets > 0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:								
	Panel A: Normalized by Lagged Assets							
Net Short-Term Exposure x	0.016	0.113	0.046 *	0.006	-0.063	0.359	0.036	-0.012
Net Capital Account	(0.093)	(0.129)	(0.026)	(0.026)	(0.348)	(0.328)	(0.064)	(0.067)
Leverage x	0.080	0.174 *	0.005	0.019	0.274	-0.025	0.077	0.115 **
Net Capital Account	(0.084)	(0.098)	(0.022)	(0.022)	(0.304)	(0.281)	(0.054)	(0.058)
Current Assets x	-0.179 *	-0.256 **	0.024	0.001	-0.056	-0.003	0.301 ***	0.185 ***
Net Capital Account	(0.096)	(0.117)	(0.024)	(0.026)	(0.350)	(0.329)	(0.064)	(0.068)
	Panel B: Normalized by Lagged Total Market Value							
Net Short-Term Exposure x	-0.072	-0.086	0.074 **	0.000	-0.214	0.931 **	0.051	0.044
Net Capital Account	(0.085)	(0.093)	(0.033)	(0.032)	(0.447)	(0.445)	(0.076)	(0.080)
Leverage x	0.219 ***	0.296 ***	0.012	0.045	0.388 *	-0.225	0.046	0.103 *
Net Capital Account	(0.073)	(0.075)	(0.027)	(0.027)	(0.359)	(0.342)	(0.055)	(0.057)
Current Assets x	-0.091	-0.186 **	0.059 *	-0.005	-0.433	0.452	0.219 ***	0.114
Net Capital Account	(0.081)	(0.086)	(0.030)	(0.031)	(0.425)	(0.413)	(0.077)	(0.080)
	Panel C: Normalized by Lagged Stock							
Net Short-Term Exposure x	0.309	0.208	0.028	0.038			0.062	0.013
Net Capital Account	(0.285)	(0.396)	(0.024)	(0.040)			(0.076)	(0.074)
Leverage x	0.009	0.070	-0.010	-0.022			-0.019	0.008
Net Capital Account	(0.159)	(0.277)	(0.016)	(0.026)			(0.034)	(0.033)
Current Assets x	0.105	0.102	0.023	0.032			0.063	0.019
Net Capital Account	(0.287)	(0.402)	(0.023)	(0.037)			(0.077)	(0.073)
	Panel D: Normalized by Lagged Total Assets (RHS) and Lagged Stock (LHS)							
Net Short-Term Exposure x	-0.824	-0.966	0.430 **	0.208	-0.021	0.381	-1.057	-3.233
Net Capital Account	(0.685)	(1.156)	(0.199)	(0.216)	(0.349)	(0.329)	(1.763)	(2.226)
Leverage x	1.017	1.115	-0.137	0.032	0.271	-0.052	0.214	2.781
Net Capital Account	(0.708)	(0.913)	(0.158)	(0.171)	(0.305)	(0.281)	(1.897)	(2.112)
Current Assets x	-0.266	-1.094	0.292	0.200	-0.023	0.000	-1.354	-2.362
Net Capital Account	(0.950)	(1.523)	(0.179)	(0.205)	(0.351)	(0.329)	(1.529)	(2.107)
	Panel E: Normalized by Lagged Total Market Value (RHS) and Lagged Stock (LHS)							
Net Short-Term Exposure x	-0.170	0.621	0.363 *	0.172	-0.147	0.579	-1.331	-3.621
Net Capital Account	(0.880)	(1.120)	(0.206)	(0.237)	(0.443)	(0.423)	(1.609)	(2.848)
Leverage x	-0.565	-0.061	-0.171	0.008	0.413	-0.322	0.056	3.118
Net Capital Account	(0.604)	(0.867)	(0.162)	(0.208)	(0.356)	(0.333)	(1.822)	(2.537)
Current Assets x	0.694	0.910	0.376 **	0.330 *	-0.358	0.316	-0.599	-3.593
Net Capital Account	(0.518)	(1.032)	(0.177)	(0.198)	(0.421)	(0.399)	(1.438)	(2.674)

Notes: Each panel presents the results from a different specification. The dependent variables are as indicated above each column. Each Panel/Column contains the results from a separate regression. Estimates of the interactions of accounting variables with the net capital account are listed in each cell. Independent variables in each regression are as in Table 3, Column 2, however reporting of the rest of the estimates is supressed. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. Accounting variables are scaled as indicated in the Panel headings. The macroeconomic variable (net capital account) is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 7: Alternative Macro Variables

	Dependent Variables:							
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets > 0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:								
				Panel A: Net Capital Account				
Net Short-Term Exposure x	0.014	0.075	0.046	0.007	-0.042	0.302	0.035	-0.039
Net Capital Account (NCA)	(0.093)	(0.134)	(0.025) **	(0.026)	(0.346)	(0.326)	(0.064)	(0.072)
				Panel B: Net Capital Account Less Foreign Direct Investment				
Net Short-Term Exposure x	-0.004	0.046	0.040	0.012	0.096	0.155	0.033	-0.064
Net Capital Account less FDI	(0.080)	(0.105)	(0.025)	(0.025)	(0.341)	(0.327)	(0.059)	(0.068)
				Panel C: Change in Domestic Private Credit				
Net Short-Term Exposure x	-0.017	-0.027	0.016	-0.005	0.308	0.274	-0.029	-0.040
Change in Domestic Credit	(0.044)	(0.051)	(0.013)	(0.013)	(0.190)	(0.185)	(0.034)	(0.038)
				Panel D: Change in Domestic Private Credit and Net Capital Account				
Net Short-Term Exposure x	0.044	0.134	0.048	0.012	-0.507	0.010	0.091	-0.013
Change in Domestic Credit	(0.113)	(0.177)	(0.033)	(0.035)	(0.394)	(0.356)	(0.077)	(0.091)
Net Short-Term Exposure x	-0.029	-0.064	0.002	-0.008	0.449	0.270	-0.054	-0.027
Net Capital Account	(0.053)	(0.073)	(0.017)	(0.018)	(0.216) **	(0.203)	(0.041)	(0.047)
				Panel E: Net Capital Account, Standardized Within Country				
Net Short-Term Exposure x	0.002	0.014	0.004	0.000	0.016	0.056	0.006	-0.004
Net Capital Account	(0.006)	(0.010)	(0.002) ***	(0.002)	(0.019)	(0.018) ***	(0.004)	(0.005)
				Panel F: Net Capital Account Less FDI, Standardized Within Country				
Net Short-Term Exposure x	0.002	0.017	0.003	0.001	0.008	0.035	0.008	-0.005
Net Capital Account less FDI	(0.006)	(0.011)	(0.002) *	(0.002)	(0.020)	(0.019) *	(0.004) *	(0.005)
				Panel G: Change in Domestic Private Credit, Standardized Within Country				
Net Short-Term Exposure x	-0.003	-0.008	0.002	-0.001	0.024	0.040	-0.002	-0.004
Change in Domestic Credit	(0.005)	(0.007)	(0.001)	(0.001)	(0.018)	(0.017) **	(0.004)	(0.004)
				Panel H: Country EMBI Spread				
Net Short-Term Exposure x	0.145	0.057	-0.009	0.005	-0.049	0.176	-0.008	0.028
EMBI spread	(0.064) **	(0.067)	(0.011)	(0.017)	(0.142)	(0.128)	(0.021)	(0.049)
				Panel I: Aggregate EMBI Spread				
Net Short-Term Exposure x	0.046	-0.058	0.005	0.004	-0.048	-0.094	0.000	0.035
EMBI spread	(0.038)	(0.049)	(0.009)	(0.009)	(0.123)	(0.117)	(0.025)	(0.024)

Note: Table continues on next page.

Table 7 (Continued): Alternative Macro Variables

	Dependent Variables:							
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets > 0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:								
			Panel J: Low Capital Inflow					
Net Short-Term Exposure x I(NCA < Z)	-0.007	-0.006	-0.007	-0.001	-0.018	-0.109	-0.008	0.006
	(0.010)	(0.019)	(0.003) **	(0.004)	(0.034)	(0.031) ***	(0.007)	(0.009)
Z=median NCA 1985-02								
			Panel K: Net Capital Account: Low vs High					
Net Short-Term Exposure x Net Capital Account	0.048	0.463	0.046	-0.040	0.418	0.996	0.100	-0.047
	(0.216)	(0.379)	(0.050)	(0.053)	(0.623)	(0.547) *	(0.127)	(0.151)
Net Short-Term Exposure x NCA x I(NCA< Z)	-0.083	-0.652	0.009	0.077	-0.727	-1.484	-0.123	0.020
	(0.314)	(0.577)	(0.085)	(0.098)	(0.948)	(0.827) *	(0.191)	(0.227)
			Panel L: Crisis Periods					
Net Short-Term Exposure x I(NCA < X)	-0.006	-0.010	-0.004	-0.004	-0.034	-0.060	-0.011	0.008
	(0.009)	(0.015)	(0.003)	(0.003)	(0.037)	(0.034) *	(0.008)	(0.009)
X=*(mean NCA 1985-02) - (stdev NCA 1985-02)*								
			Panel M: Net Capital Account, Normal versus Crisis					
Net Short-Term Exposure x Net Capital Account	0.141	0.152	0.095	-0.028	0.163	0.781	0.002	0.012
	(0.156)	(0.256)	(0.036) ***	(0.042)	(0.521)	(0.455) *	(0.099)	(0.123)
Net Short-Term Exposure x NCA x I(NCA < X)	-0.289	-0.077	-0.085	0.059	-0.356	-1.300	0.061	-0.096
	(0.214)	(0.336)	(0.062)	(0.077)	(0.847)	(0.743) *	(0.154)	(0.184)

Notes: Each panel presents the results using a different measure of capital flows. Each cell reports the results of an OLS regression. The dependent variables are as indicated above each column. Estimates of the effect of net short-term exposure times the indicated macro variable are listed in each cell. Independent variables in each regression are as in Table 3, Column 2, however reporting of the rest of the estimates is supressed. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The macroeconomic variables are from the current period. Net capital account and domestic credit are normalized by lagged GDP. Macro variables for Panel E-G are further normalized by country to zero mean and unit standard deviation. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 8: Marked Reversals of Capital Flows, 1994–1999

	1994	1995	1996	1997	1998	1999
Argentina		X				X
Brazil						X
Chile					X	
Colombia					X	
Mexico	X					
Peru				X		
Indonesia				X		
Korea				X		
Malaysia				X		
Thailand				X		
Turkey	X				X	

Notes: Country-year-specific episodes of capital-account reversals are denoted with an 'X'. Source: Calvo et al (2004) and authors' calculations.

Table 9: Sudden Stop Episodes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Dependent Variables:											
	Capital Expenditures						Inventory Investment					
	(t)	(t)	(t+1)	(t+1)	(t+2)	(t+2)	(t)	(t)	(t+1)	(t+1)	(t+2)	(t+2)
Independent Variables:												
	Panel A: Full Sample											
Interactions												
Net Short-Term Exposure x Post	-0.014	-0.021	-0.024	0.032	-0.011	0.046	-0.013	-0.025	0.034	-0.025	0.037	-0.002
	(0.026)	(0.048)	(0.024)	(0.039)	(0.024)	(0.039)	(0.016)	(0.024)	(0.016) **	(0.023)	(0.015) **	(0.023)
Current Assets x Post		0.008		0.067		0.064		-0.002		-0.096		-0.043
		(0.044)		(0.035) *		(0.034) *		(0.022)		(0.020) ***		(0.021) **
Leverage x Post		0.022		-0.031		-0.040		0.023		0.000		0.023
		(0.035)		(0.024)		(0.026)		(0.015)		(0.011)		(0.012) *
Controls												
Post	-0.009	-0.025	-0.058	-0.066	-0.067	-0.069	0.004	-0.008	-0.019	0.017	-0.006	-0.003
	(0.006)	(0.016)	(0.005) ***	(0.012) ***	(0.005) ***	(0.014) ***	(0.003)	(0.006)	(0.003) ***	(0.005) ***	(0.003) **	(0.005)
Net Short-Term Exposure	0.052	-0.031	0.048	-0.032	0.043	-0.027	-0.011	-0.002	-0.012	-0.006	-0.010	0.003
	(0.021) **	(0.035)	(0.021) **	(0.035)	(0.021) **	(0.034)	(0.012)	(0.017)	(0.012)	(0.017)	(0.012)	(0.017)
Current Assets		-0.127		-0.122		-0.111		0.010		0.008		0.012
		(0.032) ***		(0.031) ***		(0.031) ***		(0.015)		(0.015)		(0.016)
Leverage		0.014		0.013		0.005		-0.005		-0.003		-0.010
		(0.023)		(0.023)		(0.022)		(0.008)		(0.008)		(0.008)
	Panel B: Asia											
Interactions												
Net Short-Term Exposure x Post	-0.030	-0.026	-0.037	0.052	-0.049	0.055	-0.023	-0.020	0.039	-0.026	0.045	0.006
	(0.032)	(0.059)	(0.030)	(0.048)	(0.028) *	(0.045)	(0.021)	(0.031)	(0.021) *	(0.028)	(0.020) **	(0.027)
Current Assets x Post		0.020		0.128		0.154		0.015		-0.114		-0.045
		(0.057)		(0.044) ***		(0.041) ***		(0.029)		(0.026) ***		(0.027) *
Leverage x Post		0.014		-0.034		-0.033		0.011		0.000		0.027
		(0.042)		(0.030)		(0.028)		(0.020)		(0.012)		(0.013) **
Controls												
Post	-0.014	-0.030	-0.068	-0.101	-0.085	-0.127	0.002	-0.010	-0.028	0.018	-0.011	-0.009
	(0.008) *	(0.022)	(0.006) ***	(0.016) ***	(0.006) ***	(0.015) ***	(0.003)	(0.009)	(0.003) ***	(0.008) **	(0.003) ***	(0.008)
Net Short-Term Exposure	0.077	-0.037	0.068	-0.047	0.066	-0.046	-0.007	-0.004	-0.012	-0.010	-0.009	0.000
	(0.027) ***	(0.044)	(0.027) **	(0.044)	(0.027) **	(0.043)	(0.016)	(0.021)	(0.016)	(0.021)	(0.016)	(0.022)
Current Assets		-0.169		-0.172		-0.171		0.002		0.002		0.007
		(0.041) ***		(0.040) ***		(0.040) ***		(0.020)		(0.020)		(0.020)
Leverage		0.035		0.033		0.026		-0.002		-0.003		-0.009
		(0.032)		(0.031)		(0.029)		(0.009)		(0.009)		(0.009)
	Panel C: Latin America											
Interactions												
Net Short-Term Exposure x Post	-0.013	-0.002	-0.002	0.011	0.103	0.201	-0.004	-0.055	0.015	-0.004	0.009	-0.010
	(0.041)	(0.088)	(0.031)	(0.063)	(0.051) **	(0.112) *	(0.019)	(0.036)	(0.014)	(0.025)	(0.017)	(0.039)
Current Assets x Post		0.059		0.017		0.069		-0.020		-0.014		-0.018
		(0.064)		(0.053)		(0.067)		(0.033)		(0.026)		(0.035)
Leverage x Post		0.049		-0.007		-0.119		0.071		0.018		0.012
		(0.109)		(0.051)		(0.072)		(0.026) ***		(0.018)		(0.023)
Controls												
Post	0.002	-0.038	-0.034	-0.035	-0.020	0.016	0.009	-0.019	0.001	-0.004	0.001	0.000
	(0.012)	(0.049)	(0.008) ***	(0.022)	(0.012) *	(0.033)	(0.003) ***	(0.009) **	(0.002)	(0.008)	(0.003)	(0.008)
Net Short-Term Exposure	0.002	0.029	0.006	0.031	-0.001	0.034	-0.014	-0.001	-0.015	-0.008	-0.015	-0.002
	(0.025)	(0.050)	(0.024)	(0.050)	(0.024)	(0.050)	(0.012)	(0.021)	(0.011)	(0.020)	(0.011)	(0.021)
Current Assets		-0.019		-0.016		-0.011		0.010		0.004		0.012
		(0.040)		(0.040)		(0.040)		(0.021)		(0.021)		(0.021)
Leverage		-0.071		-0.068		-0.079		-0.012		-0.008		-0.011
		(0.041) *		(0.041) *		(0.041) *		(0.014)		(0.014)		(0.014)

Note: Table continues on next page.

Table 9 (Continued): Sudden Stop Episodes

	Dependent Variables: Disposal of Fixed Assets						Disposal of Fixed Assets > 0					
Independent Variables:	(t)	(t)	(t+1)	(t+1)	(t+2)	(t+2)	(t)	(t)	(t+1)	(t+1)	(t+2)	(t+2)
						Panel D: Full Sample						
Interactions												
Net Short-Term Exposure x Post	0.005	-0.005	0.007	-0.004	0.007	-0.002	-0.027	-0.069	-0.066	-0.046	0.001	0.015
	(0.004)	(0.007)	(0.004)	(0.007)	(0.004)	(0.008)	(0.077)	(0.122)	(0.076)	(0.121)	(0.078)	(0.123)
Current Assets x Post		-0.010		-0.009		-0.007		-0.051		0.043		-0.011
		(0.007)		(0.006)		(0.007)		(0.111)		(0.115)		(0.113)
Leverage x Post		0.008		0.011		0.009		0.021		0.014		-0.038
		(0.005)		(0.005) **		(0.006)		(0.072)		(0.074)		(0.075)
Controls												
Post	0.001	0.000	0.001	-0.002	0.001	-0.002	-0.019	-0.012	-0.042	-0.066	-0.058	-0.033
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.016)	(0.042)	(0.016) **	(0.043)	(0.017) ***	(0.043)
Net Short-Term Exposure	0.002	0.008	0.001	0.008	0.001	0.008	0.061	0.113	0.064	0.107	0.067	0.087
	(0.003)	(0.004) *	(0.003)	(0.004) *	(0.003)	(0.004) *	(0.055)	(0.084)	(0.055)	(0.085)	(0.056)	(0.086)
Current Assets		0.007		0.008		0.008		0.101		0.090		0.079
		(0.004)		(0.004) *		(0.004) **		(0.080)		(0.081)		(0.081)
Leverage		-0.003		-0.004		-0.005		0.018		0.023		0.055
		(0.002)		(0.003) *		(0.002) **		(0.053)		(0.053)		(0.056)
						Panel E: Asia						
Interactions												
Net Short-Term Exposure x Post	0.007	-0.007	0.011	-0.004	0.009	0.002	0.004	-0.038	-0.015	-0.034	0.051	0.053
	(0.006)	(0.009)	(0.005) **	(0.008)	(0.005) *	(0.008)	(0.087)	(0.130)	(0.083)	(0.128)	(0.087)	(0.130)
Current Assets x Post		-0.016		-0.017		-0.007		-0.059		-0.025		-0.088
		(0.008) *		(0.007) **		(0.008)		(0.127)		(0.132)		(0.132)
Leverage x Post		0.008		0.011		0.005		0.017		0.010		-0.098
		(0.006)		(0.006) **		(0.005)		(0.071)		(0.075)		(0.082)
Controls												
Post	0.002	0.004	0.002	0.002	0.001	0.001	0.002	0.016	-0.014	-0.010	-0.026	0.068
	(0.001)	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)	(0.018)	(0.051)	(0.018)	(0.053)	(0.019)	(0.053)
Net Short-Term Exposure	0.001	0.007	0.000	0.007	0.000	0.007	0.047	0.129	0.048	0.127	0.064	0.114
	(0.003)	(0.005)	(0.003)	(0.005)	(0.003)	(0.005)	(0.056)	(0.081)	(0.056)	(0.082)	(0.056)	(0.086)
Current Assets		0.008		0.008		0.008		0.156		0.157		0.152
		(0.005)		(0.005)		(0.005)		(0.087) *		(0.087) *		(0.090) *
Leverage		-0.003		-0.005		-0.005		0.019		0.028		0.076
		(0.003)		(0.003) *		(0.003) *		(0.051)		(0.053)		(0.062)
						Panel F: Latin America						
Interactions												
Net Short-Term Exposure x Post	-0.002	-0.007	-0.010	-0.007	-0.005	-0.039	-0.224	-0.362	-0.256	-0.209	-0.249	-0.474
	(0.004)	(0.011)	(0.006)	(0.012)	(0.008)	(0.023) *	(0.167)	(0.360)	(0.169)	(0.362)	(0.173)	(0.382)
Current Assets x Post		-0.001		0.013		-0.023		-0.179		0.081		-0.140
		(0.010)		(0.014)		(0.022)		(0.307)		(0.304)		(0.325)
Leverage x Post		0.009		0.009		0.039		0.051		0.011		0.244
		(0.008)		(0.010)		(0.027)		(0.258)		(0.258)		(0.269)
Controls												
Post	-0.001	-0.004	-0.001	-0.009	0.000	-0.012	-0.062	-0.036	-0.100	-0.127	-0.129	-0.207
	(0.001)	(0.004)	(0.002)	(0.006)	(0.002)	(0.007)	(0.035) *	(0.094)	(0.035) ***	(0.097)	(0.036) ***	(0.096) **
Net Short-Term Exposure	0.005	0.011	0.005	0.012	0.004	0.014	0.190	0.154	0.192	0.156	0.165	0.165
	(0.003) *	(0.007) *	(0.003) *	(0.007) *	(0.003)	(0.007) **	(0.129)	(0.274)	(0.130)	(0.281)	(0.134)	(0.286)
Current Assets		0.008		0.008		0.012		-0.010		-0.025		0.003
		(0.006)		(0.006)		(0.006) **		(0.224)		(0.228)		(0.229)
Leverage		-0.003		-0.003		-0.005		0.052		0.036		0.007
		(0.006)		(0.006)		(0.006)		(0.181)		(0.183)		(0.181)

Notes: Each column reports the results of an OLS regression. Period t is the capital reversal episode, as defined in the text. All regressions include observations from two periods: t-1 and either t, t+1 or t+2. The post dummy corresponds to periods t, t+1 or t+2. The dependent variables are as indicated above each column. Estimates of the effect of the independent variables are listed in each row. Huber-White standard errors are reported in parenthesis. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. All accounting variables are scaled by the lag of total firm assets. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 10: Differential Access to Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variables:							
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets > 0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:	*Panel A: Interaction with ADR*							
Net Short-Term Exposure x Net Capital Account	-0.054 (0.107)	0.004 (0.162)	0.053 (0.025) **	0.044 (0.026) *	-0.029 (0.388)	0.307 (0.379)	0.001 (0.058)	-0.030 (0.068)
Dummy if firm has ADR x Net Capital Account	-0.067 (0.057)	-0.128 (0.077) *	-0.006 (0.013)	0.010 (0.026)	-0.241 (0.225)	0.126 (0.207)	0.016 (0.029)	0.025 (0.034)
	Panel B: Interaction with Listed on Stock Exchange							
Net Short-Term Exposure x Net Capital Account	-0.053 (0.106)	0.005 (0.162)	0.054 (0.025) **	0.045 (0.026) *	-0.039 (0.387)	0.283 (0.379)	0.002 (0.058)	-0.030 (0.068)
Dummy if listed on exchange x Net Capital Account	0.052 (0.294)	-0.337 (0.455)	-0.016 (0.018)	-0.023 (0.027)	0.855 (0.569)	1.144 (0.523) **	0.107 (0.113)	0.005 (0.135)
	Panel C: Interaction with Size							
Net Short-Term Exposure x Net Capital Account	-0.116 (0.111)	-0.150 (0.180)	0.071 (0.025) ***	0.051 (0.028) *	-0.067 (0.403)	0.487 (0.384)	-0.013 (0.061)	-0.057 (0.073)
Log Total Assets x Net Capital Account	-0.026 (0.013) **	-0.063 (0.023) ***	0.006 (0.003) **	0.002 (0.003)	0.076 (0.039) **	0.140 (0.037) ***	-0.006 (0.006)	-0.011 (0.008)
	Panel D: Industry-Specific Sensitivities to Capital Flows							
Net Short-Term Exposure x Net Capital Account	-0.003 (0.106)	0.088 (0.170)	0.048 (0.025) *	0.031 (0.027)	-0.159 (0.389)	0.107 (0.385)	0.012 (0.059)	-0.023 (0.069)
Dummies for 1-digit SIC x Net Capital Account	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Each column reports the results of an OLS regression. The dependent variables are as indicated above each column. Estimates of the effect of the independent variables are listed in each row. Also included in each regression are indicator variables for each country-year cell. Huber-White standard errors are given in parentheses. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. All accounting variables are scaled by the lag of total firm assets. The macroeconomic variable (net capital account) is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 11: Competitiveness Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variables:							
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets > 0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:	*Panel A: Controling for Profitability*							
Net Short-Term Exposure x Net Capital Account	-0.182 (0.112)	-0.109 (0.221)	0.056 (0.025) **	0.040 (0.028)	-0.330 (0.384)	-0.020 (0.360)	-0.059 (0.058)	-0.084 (0.071)
EBITDA	0.147 (0.006) ***	0.187 (0.012) ***	0.000 (0.001)	0.001 (0.002)	0.088 (0.019) ***	0.110 (0.018) ***	0.071 (0.003) ***	0.047 (0.004) ***
	Panel B: Controls x Dlog(rer)							
Net Short-Term Exposure x Net Capital Account	-0.079 (0.114)	-0.014 (0.222)	0.055 (0.026) **	0.041 (0.028)	-0.049 (0.389)	0.133 (0.356)	-0.014 (0.060)	-0.023 (0.073)
	Panel C: SIC x Dlog(rer) interactions							
Net Short-Term Exposure x Net Capital Account	-0.018 (0.111)	0.030 (0.217)	0.056 (0.025) **	0.031 (0.028)	-0.316 (0.380)	0.035 (0.349)	0.000 (0.058)	-0.036 (0.071)
	Panel D: Dummy Export x Dlog(rer) interactions							
Net Short-Term Exposure x Net Capital Account	-0.029 (0.111)	0.019 (0.216)	0.061 (0.025) **	0.040 (0.028)	-0.063 (0.379)	0.264 (0.347)	0.010 (0.058)	-0.038 (0.071)
	Panel E: SIC x Dlog(rer) interactions & Dummy Export x Dlog(rer) interactions							
Net Short-Term Exposure x Net Capital Account	-0.160 (0.113)	-0.071 (0.236)	0.054 (0.027) **	0.035 (0.030)	-0.360 (0.405)	-0.063 (0.378)	-0.030 (0.062)	-0.107 (0.076)
	Panel F: Year x Country x SIC fixed effects							
Net Short-Term Exposure x Net Capital Account	-0.049 (0.112)	0.047 (0.229)	0.052 (0.026) **	0.035 (0.029)	-0.223 (0.399)	0.054 (0.364)	0.024 (0.061)	-0.026 (0.075)

Notes: Each column reports the results of an OLS regression. The dependent variables are as indicated above each column. Estimates of the effect of the independent variables are listed in each row. Also included in each regression are indicator variables for each country-year cell. Huber-White standard errors are given in parentheses. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. All accounting variables are scaled by the lag of total firm assets. The macroeconomic variables (net capital account and log change in the real exchange rate) are from the current period. Net capital account is normalized by lagged GDP. The real exchange rate is the ratio of the local currency price of the US$ to the domestic CPI. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 12: Controls for Corporate Affiliations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets > 0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:								
				Panel A: Baseline for Asia				
Net Short-Term Exposure x Net Capital Account	-0.025	0.028	0.042	0.009	0.144	0.436	0.028	-0.022
	(0.111)	(0.144)	(0.028)	(0.028)	(0.411)	(0.389)	(0.074)	(0.080)
				Panel B: Asia Sample with Controls for Affiliations				
Net Short-Term Exposure x Net Capital Account	-0.026	0.014	0.045	0.010	0.174	0.432	0.022	-0.028
	(0.111)	(0.144)	(0.028)	(0.028)	(0.411)	(0.389)	(0.074)	(0.080)
Ownership (Widely-Held) x Net Capital Account	0.100	0.077	-0.005	0.008	-0.068	0.109	-0.027	-0.020
	(0.098)	(0.108)	(0.011)	(0.012)	(0.222)	(0.209)	(0.038)	(0.040)
Ownership (Bank) x Net Capital Account	0.014	-0.038	0.064	0.025	0.143	0.486	-0.007	-0.027
	(0.090)	(0.098)	(0.052)	(0.018)	(0.430)	(0.397)	(0.053)	(0.072)
Ownership (Family) x Net Capital Account	0.017 *	-0.051	0.010	0.017	-0.008	-0.233 **	0.009	-0.014
	(0.037)	(0.047)	(0.008)	(0.009)	(0.110)	(0.105)	(0.022)	(0.024)
Ownership (Government) x Net Capital Account	-0.019	-0.056	-0.001	-0.004	0.129	-0.260	-0.098 ***	-0.005
	(0.057)	(0.082)	(0.008)	(0.010)	(0.203)	(0.212)	(0.034)	(0.047)
				Panel C: Baseline for Latin American Sample				
Net Short-Term Exposure x Net Capital Account	-0.318	0.603	-0.121	-0.053	0.377	-0.051	-0.049	-0.034
	(0.335)	(0.529)	(0.089)	(0.101)	(1.017)	(0.851)	(0.221)	(0.362)
				Panel D: Latin American Sample with Controls for Affiliations				
Net Short-Term Exposure x Net Capital Account	-0.312	0.662	-0.126	-0.068	0.195	-0.078	-0.065	-0.060
	(0.332)	(0.535)	(0.089)	(0.100)	(1.021)	(0.867)	(0.220)	(0.361)
Property (Subsidiary) x Net Capital Account	-0.001	0.274	-0.038 **	-0.018	-0.646	-0.178	-0.111	-0.041
	(0.139)	(0.215)	(0.019)	(0.017)	(0.427)	(0.353)	(0.073)	(0.090)
Property (Affiliate) x Net Capital Account	-0.492 *	-0.085	-0.047	-0.047	-2.532 ***	-0.626	-0.111	0.107
	(0.284)	(0.341)	(0.034)	(0.030)	(0.874)	(0.753)	(0.130)	(0.111)
Property (Other) x Net Capital Account	0.095	0.272 *	-0.043 **	-0.049 **	-0.620 *	0.034	-0.058	-0.079
	(0.113)	(0.162)	(0.019)	(0.023)	(0.371)	(0.310)	(0.050)	(0.066)

Notes: Each Panel/column presents the results from a different specification. The dependent variables (and their timing) are as indicated above each column. Estimates of the effect of the independent variables are listed in each row. Independent variables in each regression are as in Table 3, Column 2, except for the additional ownership variables. (Reporting of the rest of the estimates is suppressed.) A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level accounting variables are once-lagged values and are normalized by lagged assets. The ownership variables, defined in the text, are dummies interacted with the net-capital account. (The first-order effects are estimated, but not reported.) The macroeconomic variable (net capital account) is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. The ownership data for East Asian corporations are from Claessens, Djankov, and Lang (2000), while the Latin-American data are from *Corporate Affiliations*. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 13: Financing and Short-Term Exposure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Dependent Variables:											
Independent Variables and Regression Statistics:	Total Debt			Interest Payments			Gross New Debt			Net New Debt		
	Panel A: Dependent Variables from the Current Year											
Interactions with Capital Flows:												
Net Short-Term Exposure x	-2.058	-0.131	-0.327	-0.133	-0.087	-0.152	0.371	0.268	0.580	-0.108	-0.112	-0.048
Net Capital Account	(0.303) ***	(0.387)	(0.417)	(0.033) ***	(0.057)	(0.055) ***	(0.085) ***	(0.192)	(0.198) ***	(0.100)	(0.213)	(0.234)
Leverage x		-0.345	-0.671		0.072	-0.004		0.179	-0.162		-0.071	-0.146
Net Capital Account		(0.293)	(0.293) **		(0.050)	(0.044)		(0.182)	(0.185)		(0.181)	(0.189)
Current Assets x		0.756	0.585		-0.085	-0.108		0.136	0.528		0.000	0.129
Net Capital Account		-0.317 **	(0.336) *		(0.048) *	(0.045) **		(0.183)	(0.181) ***		(0.182)	(0.187)
Controls:												
Net Short-Term Exposure	0.593	0.032	0.018	0.050	0.001	-0.006	0.022	-0.049	-0.016	-0.022	-0.008	-0.004
	(0.022) ***	(0.029)	(0.032)	(0.002) ***	(0.004)	(0.004) *	(0.006) ***	(0.011) ***	(0.012)	(0.007) ***	(0.013)	(0.015)
Leverage		0.852	0.757		0.073	0.035		0.071	0.031		-0.022	-0.031
		(0.024) ***	(0.032) ***		(0.003) ***	(0.004) ***		(0.010) ***	(0.009) ***		(0.011) *	(0.013) **
Current Assets		0.033	0.023		-0.004	-0.006		-0.067	-0.032		-0.004	0.000
		-0.023	(0.026)		(0.003)	(0.003) **		(0.011) ***	(0.011) ***		(0.011)	(0.012)
Lagged Dependent Variable			0.086			0.558			0.202			0.105
			(0.017) ***			(0.022) ***			(0.019) ***			(0.013) ***
Regression Statistics:												
N	19190	19185	15497	18643	18634	14883	14896	14887	11860	15402	15393	12409
R^2	0.34	0.58	0.59	0.38	0.48	0.62	0.11	0.12	0.17	0.12	0.12	0.14
	Panel B: Dependent Variables from the Following Year											
Interactions with Capital Flows:												
Net Short-Term Exposure x	-1.880	-1.306	-2.058	-0.072	-0.017	-0.066	0.409	0.279	0.353	0.107	-0.142	-0.054
Net Capital Account	(0.405) ***	(0.535) **	(0.485) ***	(0.038) *	(0.059)	(0.048)	(0.106) ***	(0.220)	(0.196) *	(0.105)	(0.198)	(0.188)
Leverage x		1.133	0.381		0.078	0.012		0.353	0.175		0.377	0.334
Net Capital Account		(0.401) ***	(0.353)		(0.047) *	(0.032)		(0.204) *	(0.169)		(0.170) **	(0.134) **
Current Assets x		-0.150	-1.251		-0.001	-0.026		0.244	0.290		-0.137	-0.111
Net Capital Account		-0.480	(0.442) ***		(0.050)	(0.040)		(0.199)	(0.187)		(0.176)	(0.173)
Controls:												
Net Short-Term Exposure	0.498	0.058	0.065	0.041	0.001	-0.001	0.012	-0.059	-0.022	-0.020	-0.003	0.010
	(0.029) ***	(0.038)	(0.034) *	(0.003) ***	(0.004)	(0.003)	(0.009)	(0.017) ***	(0.014)	(0.009) **	(0.015)	(0.014)
Leverage		0.738	0.301		0.066	0.025		0.081	0.039		-0.011	-0.019
		(0.029) ***	(0.038) ***		(0.004) ***	(0.003) ***		(0.014) ***	(0.012) ***		(0.011)	(0.010) **
Current Assets		0.076	0.057		-0.001	0.001		-0.059	-0.031		0.021	0.019
		-0.033 **	(0.030) *		(0.004)	(0.003)		(0.014) ***	(0.015) **		(0.012) *	(0.013)
Lagged Dependent Variable			0.518			0.557			0.252			0.122
			(0.028) ***			(0.021) ***			(0.033) ***			(0.025) ***
Regression Statistics:												
N	15564	15557	12452	15116	15110	11951	12403	12398	10079	12782	12777	10502
R^2	0.20	0.30	0.49	0.33	0.39	0.57	0.10	0.11	0.18	0.10	0.10	0.13

Notes: Each column reports the results of an OLS regression. The dependent variables are as indicated above each column. Estimates of the effect of the independent variables are listed in each row. Also included in each regression are indicator variables for each country-year cell. Huber-White standard errors are given in parentheses. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The number of observations varies because of data availability. Net short-term exposure is defined as the difference between current liabilities and current assets. Firm-level independent variables are once-lagged values. All accounting variables are scaled by the lag of total firm assets. The macroeconomic variable (net capital account) s from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 14: Income and Short-Term Exposure

Period for Dependent Variable:	Estimated Coefficient on Net Short-Term Exposure x Net Capital Account (t)	(t+1)
Dependent Variable:		
Panel A: Full Sample		
Income Variables		
1. Operating Income	0.047	0.009
	(0.097)	(0.091)
2. Non Operating Income	0.602	0.112
	(0.229) ***	(0.155)
2.1 Income from investments	-0.031	-0.008
	(0.023)	(0.023)
2.2 Accrued Interest Cost	-0.152	-0.066
	(0.055) ***	(0.048)
2.3 Other Non Operating Income	0.338	0.126
	(0.154) **	(0.089)
3. Net Income	0.859	0.092
	(0.285) ***	(0.188)
Cash Flow Variables		
Cash flow from Operations	0.096	-0.032
	(0.100)	(0.096)
Earnings before interest, taxes and amortizations	0.786	-0.003
	(0.268) ***	(0.182)
Panel B: Subsample With Detailed Data		
Other Non Operating Income	0.245	0.208
	(0.107) **	(0.107) **
Gains from sale of assets	0.062	0.078
	(0.033) *	(0.032) **

Notes: Each cell reports the results of the estimated coefficient on (Net Short-Term Exposure × Net Capital Account) from an OLS regression. Independent variables in each regression are as in Table 3, Column 3, however reporting of the rest of the estimates is supressed. The dependent variable is listed in each row. Huber-White standard errors are reported in parenthesis. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. The sample varies across dependent variables because of data availability. Net capital account is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database. Definitions of the accounting variables are provided in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.

Table 15: Investment Elasticity to Capital Flows: Whole Economy vs. Sample of Corporates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Independent Variables	*Panel A: LHS is Log (Gross Fixed Capital Formation in Private Sector)*									
Net Capital Account	1.850 ***	1.792 **	2.550 ***	2.504 ***	2.333 ***	2.375 ***				
	(0.610)	(0.798)	(0.614)	(0.640)	(0.447)	(0.610)				
NKA x Latin America		0.310						-0.753		
		(1.471)						(1.321)		
Lagged Dependent Variable					0.704 ***	0.521 ***				
					(0.059)	(0.076)				
Lagged Net Capital Account							3.278 ***	3.571 ***	3.522 ***	3.918 ***
							(0.577)	(0.772)	(0.560)	(0.565)
Time Trend			Yes						Yes	
Time Trend x Country Dummy				Yes		Yes				Yes
	Panel B: LHS: Log (Capital Expenditures from Firm Level Data)									
Net Capital Account	2.277 ***	1.711 ***	2.992 ***	3.161 ***	2.323 ***	3.287 ***				
	(0.357)	(0.452)	(0.321)	(0.373)	(0.323)	(0.403)				
NKA x Latin America		1.847 **						1.425 *		
		(0.834)						(0.739)		
Lagged Dependent Variable					0.285 ***	0.188 ***				
					(0.043)	(0.051)				
Lagged Net Capital Account							2.840 ***	2.382 ***	3.067 ***	3.282 ***
							(0.335)	(0.431)	(0.302)	(0.350)
Time Trend			Yes						Yes	
Time Trend x Country Dummy				Yes		Yes				Yes

Notes: Each Panel/Column contains the results from a separate regression of logarithmic investment growth on the net capital account. In Panel A, the dependent variable is constructed from data on the gross fixed-capital formation of the private sector. The capital expenditures from Worldscope sample described in Section II are used to form the investment measure. Country fixed effects are included in each specification, but not reported.

Appendix: Data Sources and Definitions

This appendix describes our main variables and sources.

VII.A Sources and definitions for the firm-level data

Our main source of firm level data is the Worldscope Database. There are two main types of firm level data: accounting variables, and non-accounting variables. The first come directly from firm Balance Sheets, Income Statements and Cash-Flow Statements. The second correspond to additional information regarding firm ownership, and production structure. Examples of the latter are whether a firm has a listed stock, where this stock is traded, and the sector where the firm is operating. The only firm level variables not from Worldscope are the ADR dummy, which identifies whether the firm trades shares in the form of American Depositary Receipts (ADRs), and the variables identifying firms as part of a conglomerate.

The codes correspond to the codes from Worldscope database. Unless specified otherwise all accounting variables are scaled by lagged total assets (WS 02999).

Accounting Variables

Investment

- Capital Expenditures: This variable corresponds to the funds spent by the firm on fixed assets (WS 04601).
- Disposal of Fixed Assets: Sales of fixed assets (WS 04351).
- Change in Inventories: This variable corresponds to the change in inventories (WS 02101) between the current and previous year.

Main control variables

- Exposure: This variable is measured as the difference between lagged current liabilities (WS 03101) and lagged current assets.
- Leverage: Lagged total liabilities (WS 03351).
- Current Assets: Lagged current assets (WS 02201).

Financing variables

- Interest Accruals: Interest expenses on debt (WS 01251).
- Gross New Debt: This variable corresponds to new debt issuance. It includes both short-term and long-term debt. It is constructed as long-term borrowings (WS 04401) plus net short term borrowings (WS 04821).
- Net New Debt: This variable corresponds to debt issuance, net of debt repayments. It includes both short-term and long-term debt. It is constructed as long-term borrowings (WS 04401) minus the reduction in long-term debt (WS 04701) plus net short term borrowings (WS 04821).

Income variables

- Operating Income: Income from firm's main line of operations (WS 01250).
- Net Income: This variable correspond to net income after preferred dividends (WS 01706).
- Non Operating Income: Is the difference between Operating Income (WS 01250) and Net Income (WS 01706).
- Income from Investments: This variable is a sub-category of Non Operating Income. It is the sum of: Non Operating Interest Income (WS 01266), Pretax Equity Earnings (WS 01267) and Equity in Earnings (WS 1503).
- Other Non Operating Income: This variable is a sub-category of Non Operating Income. It is the sum of Other Income (WS 01262) and After Tax Other Income (WS 01540).
- Gains from Sales of Assets: This variable is a supplementary variable to the income statement. It is included in Other Non Operating Income, and corresponds to accounting gains/losses from the sale of assets (WS 01306).
- Cash Flow from operations (WS 04201).
- EBITDA: This variable correspond to the earnings before interest expense, income taxes and depreciation (WS 18198).

Non-Accounting Variables

- ADR: This is a indicator variable that measures wether the firm's stock is listed in a US stock exchange in the form of American Depository Receipts. The variable was constructed using information from the Bank of New York.
- Cross-listing: This is a indicator variable that takes on value 1 wether the firm's stock is traded in more than one stock exchange. It was constructed using (WS 20009)
- Listed on a stock exchange: This is a indicator variable that take the value 1 wether the firm has a stock listed in a stock exchange (WS 20009).
- SIC code: Standard Industrial Classification code (version 1987) (WS 07021)
- Export dummy: dummy if firm exported (WS 07161) in previous period.

Property Data

- For firms from East Asia, the source of data on firm ownership is Claessens, Djankov and Lang (2000). The first category is for widely held firms. The additional three categories are: firms affiliated with banks, firms affiliated with families and firms affiliated with governments. The omitted category is for those firms not classified in that study. Data refer to ownership status in 1996.
- For Latin America, we build ownership variables using the June 2003 version of the Corporate Affiliations Plus database (Lexis-Nexis, 2003). This database classifies firms into subsidiaries, affiliates and widely held corporations. The omitted category is for firms not appearing in the Corporate Affiliations database.

VII.B Sources and Definitions for the Macroeconomic Data

All the aggregate variables are based on data from the International Financial Statistics, (IMF, 2004a) with the exception of the Sudden Stop Dummy which comes from Calvo, Izquierdo, Mejia. (2004).

VII.B.1 Capital Flows

- Net Capital Inflows: Net financial account (IFS 78bjd) expressed in previous period local currency, scaled by lagged nominal GDP (IFS 99b). For previous period local currency US Dollar Balance of Payments variables are multiplied by the once lagged period average exchange rate (local currency $\times$ US Dollar).

- Capital Inflows net of FDI: This variable corresponds to Net Financial Account (IFS 78bjd) net of Direct Investment Abroad (IFS 78bdd) and Direct Investment in Reporting Economy (IFS 78bed), expressed in previous period local currency, scaled by lagged nominal GDP.

- Change in Credit to the Private Sector: This variable corresponds to the cpi-adjusted change in bank credit to private sector (IFS 22d) scaled by nominal GDP.

VII.B.2 Alternative Measures of Capital Flows

- Low Capital Inflow (*low*): This is a indicator variable that takes a value of 1 when the Net Financial Account (IFS 78bjd) is below a threshold z, where z is defined as the median value of the Net Financial Account in the period between 1985 and 2002 per country.

- Crisis Inflow (*crisis*) : This is a indicator variable that takes a value of 1 when the Net Financial Account (IFS 78bjd) is below a threshold x, where x is the mean value minus one standard deviation of the Net Financial Account over the period 1985 to 2002 for each country.

- Stop in Capital Inflows (*stop*): This is a indicator variable that takes on a value of 1 for negative changes in Net Capital Inflows.

- Sudden Stop: From Calvo *et al.* (2004). The authors define a Sudden Stop as a phase that meets the following conditions:

  1. It contains at least one observation where the year-on-year fall in capital flows lies at least two standard deviations below its sample mean.
  2. The Sudden Stop phase ends once the annual change in capital flows exceeds one standard deviation below its sample mean.
  3. Moreover, for the sake of symmetry, the start of a Sudden Stop phase is determined by the first time the annual change in capital flows falls one standard deviation below the mean.
  4. The episode must lead to a costly disruption in economic activity, defined as a contraction in output.

  For the episode section, we work with the first year in the Calvo *et al*'s sudden-stop event.

VII.B.3 Aggregate Investment

- We built aggregate investment data in our sample using the Capital Expenditures variable described above. To control for the effects of changes in sample size we aggregate annual percentage changes in firm capital expenditure $\hat{I}_{ict}$, to construct the aggregate percentage change in total sample investment $\hat{I}_{ct}$, such that

$$\hat{I}_{ct} = \sum_{i=1}^{n} \alpha_{ict-1} \hat{I}_{ict}$$

  where α_{ict-1} is the share of capital expenditures of firm i in total expenditures of country c in period $t-1$.

- Economy-wide investment data is Private Gross Fixed Capital Formation from the World Economic Outlook of the IMF (IMF 2004b). For Korea and Indonesia, we complement the IMF data with a series on private investment from Everhart and Sumlinski (2001).

- Both investment series are deflated by period average CPI from the International Financial Statistics, (IMF, 2004a).

Appendix Table 1: Robustness to Sample Changes

	Dependent Variables:							
	Capital Expenditures		Disposal of Fixed Assets		Disposal of Fixed Assets>0		Inventory Investment	
Period for dependent variable:	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)	(t)	(t+1)
Independent Variables:	*Baseline Sample: Outliers z-score>6, synthetic firms, imputed values for bankrupt firms*							
Net Short-Term Exposure x	0.015	0.075	0.052	0.004	-0.062	0.282	0.036	-0.039
Net Capital Account	(0.093)	(0.134)	(0.026) **	(0.026)	(0.346)	(0.326)	(0.064)	(0.072)
Number of Observations	13943	11362	11613	9864	20023	20023	14238	11598
	Sample 2: Outliers z-score>6, synthetic firms, no imputed values for bankrupt firms							
Net Short-Term Exposure x	0.015	0.075	0.050	0.004	-0.051	0.293	0.036	-0.039
Net Capital Account	(0.093)	(0.134)	(0.026) *	(0.026)	(0.346)	(0.326)	(0.064)	(0.072)
Number of Observations	13938	11362	11609	9864	20016	20016	14233	11598
	Sample 3: Outliers z-score>6, no synthetic firms, imputed values for bankrupt firms							
Net Short-Term Exposure x	0.018	0.078	0.056	0.008	0.057	0.432	0.047	-0.042
Net Capital Account	(0.093)	(0.134)	(0.026) **	(0.026)	(0.345)	(0.326)	(0.063)	(0.072)
Number of Observations	14322	11666	11821	10041	20523	20523	14645	11922
	Sample 4: Outliers z-score>6, no synthetic firms, no imputed values for bankrupt firms							
Net Short-Term Exposure x	0.018	0.078	0.054	0.008	0.068	0.442	0.047	-0.042
Net Capital Account	(0.093)	(0.134)	(0.026) **	(0.026)	(0.345)	(0.325)	(0.063)	(0.072)
Number of Observations	14317	11666	11817	10041	20516	20516	14640	11922
	Sample 5: Outliers top and bottom 1%, synthetic firms, imputed values for bankrupt firms							
Net Short-Term Exposure x	-0.031	-0.032	0.055	0.004	-0.094	0.301	0.029	0.045
Net Capital Account	(0.072)	(0.084)	(0.022) **	(0.024)	(0.388)	(0.360)	(0.053)	(0.057)
Number of Observations	13423	10964	11294	9599	19511	19511	13642	11072
	Sample 6: Outliers top and bottom 1%, synthetic firms, no imputed values for bankrupt firms							
Net Short-Term Exposure x	-0.030	-0.032	0.054	0.004	-0.082	0.313	0.027	0.045
Net Capital Account	(0.072)	(0.084)	(0.022) **	(0.024)	(0.388)	(0.360)	(0.053)	(0.057)
Number of Observations	13418	10964	11291	9599	19504	19504	13639	11072
	Sample 7: Outliers top and bottom 1%, no synthetic firms, imputed values for bankrupt firms							
Net Short-Term Exposure x	-0.025	-0.034	0.056	0.008	0.008	0.464	0.038	0.037
Net Capital Account	(0.072)	(0.084)	(0.022) **	(0.024)	(0.386)	(0.359)	(0.053)	(0.057)
Number of Observations	13787	11261	11490	9764	19994	19994	14031	11386
	Sample 8: Outliers top and bottom 1%, no synthetic firms, no imputed values for bankrupt firms							
Net Short-Term Exposure x	-0.024	-0.034	0.056	0.008	0.021	0.476	0.036	0.037
Net Capital Account	(0.072)	(0.084)	(0.022) **	(0.024)	(0.386)	(0.359)	(0.053)	(0.057)
Number of Observations	13782	11261	11487	9764	19987	19987	14028	11386

Notes: Each panel presents the results using a different sample. Each cell reports the results of an OLS regression. The dependent variables are as indicated above each column. Estimates of the effect of the indicated short-term exposure variable times the capital inflow variable are listed in each cell. Independent variables in each regression are as in Table 3, Column 2, however reporting of the rest of the estimates is supressed. A single asterisk denotes statistical significance at the 90% level of confidence; double, 95%; triple, 99%. Net capital account is from the current period, but normalized by lagged GDP. The accounting data are from the Worldscope database, as described in the text. Macro data are drawn from various sources. For detailed sources and descriptions, see Section II.