

Capital Inflows, Equity Issuance Activity, and Corporate Investment

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Abstract

We use issuance-level data to study how equity capital inflows that enter emerging market economies affect equity issuance and corporate investment. Foreign inflows are strongly correlated with contemporaneous and future country-level issuance. The relation reflects the behavior of firms issuing in international equity markets and that of large issuers in domestic markets. Those larger, more liquid, and highly valued firms are the ones more likely to raise equity when their country receives capital inflows. The use of MSCI Emerging Markets Index portfolio weights as an instrument for capital flows shows that shifts in the supply of foreign capital drive in part these results. Increases in equity inflows predict that large issuers increase investment, accumulate more cash and inventories, pay down debt, and increase acquisitions. Corporate investment increases by more than half the amount of foreign equity capital entering the country.

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I. Introduction

Capital inflows are prevalent in emerging market countries. In 2014, foreign investors invested more than 1 trillion U.S. dollars into emerging countries. Of those inflows, 90 billion U.S. dollars came in the form of equity, i.e., foreign investors' purchases of stocks of publicly traded emerging market firms.

In this paper, we study how those capital inflows affect the economies that receive them by analyzing their connection to equity financing and corporate investment. In particular, we investigate whether publicly traded firms in emerging countries issue more equity when their country receives inflows of foreign capital. Ours is the first study of which we are aware that examines the links that connect equity capital inflows, equity issuance, and the uses of new issuance proceeds. We distinguish between issuances in international and domestic equity markets. We also examine whether firms differ in the degree to which their issuance of new equity responds to increased funding by foreign equity investors. Lastly, we analyze the extent to which firms use the funds raised in the offerings to finance corporate investment. To implement our analysis, we assemble a granular dataset containing information on equity issuances and financial statements for firms in 25 emerging market countries, in addition to capital inflows, during the 25-year period 1990-2014.

Figure 1 plots the evolution of the aggregate amount of equity investing by foreign investors into our sample countries, together with the value of equity raised by firms in those countries. The figure shows that global equity inflows and global equity issuances are highly correlated. That is, periods of large capital inflows coincide with periods of active equity issuance activity. This correlation could reflect the role of foreign equity inflows in encouraging destination countries' firms to issue shares following the higher demand for their shares and lower required returns that result from foreign participation in the equity

market (shifting the supply of capital). If so, capital inflows do not just produce an ownership transfer between domestic and foreign investors, but important changes in the cost of equity finance, which result in greater reliance on equity financing by firms. At the same time, the positive correlation between inflows and issuance does not necessarily imply a causal influence of capital inflows. Improvements in economic conditions in destination countries could explain both higher capital inflows and greater equity issuance. Alternatively, shifts in the demand of capital by firms could induce foreign investors to enter the country.

To examine the relation between capital inflows and equity issuance in more detail, we first conduct a country-level analysis, where we regress each country's equity issuances on equity inflows, taking account of country and year fixed effects. We find that every million U.S. dollar of equity capital received from foreign investors is associated with an increase of 0.62 million U.S. dollars in the value of issuance proceeds. The results are the same for issuances that take place in international and domestic equity markets. To further understand the link between country issuances and capital inflows, we decompose the response of issuances into the likelihood of issuing equity ("extensive margin") and the value of equity proceeds conditional on issuing equity ("intensive margin"). We find that both margins are important for country-level issuances.

We then move to the micro-level analysis to better understand the mechanisms that drive these aggregate issuance patterns. We regress firm-level issuance proceeds in both domestic and international markets on equity capital inflows, controlling for firm and year fixed effects. We find no significant correlation between capital inflows and the value of issuance proceeds of the typical emerging market firm. When we focus on only domestic issuances, again we find no influence of capital inflows on the typical firm's issuance. When

we analyze issuances in international equity markets separately, however, we find a strong correlation between inflows and foreign issuances.

On average, international equity issuances are 70% larger in amount than domestic issuances, which suggests that the differential response of equity issuances in the international market might reflect differences in issuance size. We explore that possibility by dividing our sample of domestic-issuing firms into two groups: those that issue a large amount of equity during our sample period (“large issuers”) and those issuing a small amount (“small issuers”). We find a strong association between capital inflows and domestic issuance proceeds for large issuers, indicating that only large domestic issuers respond to capital inflows.¹ Our results are robust to accounting for country-year fixed effects, which allow us to control for all time-varying country shocks.

Next, we decompose the foreign and large domestic issuers’ response to capital inflows into the extensive and intensive margins. We find that the response of issuances to capital inflows primarily reflects the extensive margin: foreign issuers and large domestic issuers both become more likely to issue positive amounts of equity upon arrival of capital inflows. This firm-level extensive-margin response explains both the aggregate intensive- and extensive-margin responses. When a country receives foreign inflows, some firms are more likely to issue equity, which increases the likelihood that the country (as a whole) issues equity and also increases the value of equity raised conditional on positive issuance. Because foreign issuers and large domestic issuers are more likely to issue and capture a larger share of the total equity raised when more foreign capital enters the country, the composition of

¹ According to cross-sectional regressions, these large issuers tend to be large firms, with international presence, liquid stocks, and high market-to-book equity ratios.

issuers and issuance activity changes in response to capital inflows; in particular, issuance becomes more concentrated in larger firms.

The increase in issuance activity could reflect an increase in foreign equity supply by investors (resulting, for example, from greater global liquidity), or greater domestic equity demand by firms (resulting, for example, from improvements in investment opportunities), or both. We provide three pieces of evidence suggesting that our results are driven at least in large part by an increase in foreign supply.

First, we regress equity issuance on one-year lagged equity capital inflows. Whereas it is possible that equity inflows could respond to increased contemporaneous equity demand, it is less likely that inflows respond to future equity demand one-year in advance. We find that issuance activity correlates strongly with one-year lagged equity inflows. Moreover, this finding sheds light on the channels of transmission from inflows to issuance activity. The contemporaneous effect is consistent either with foreigners purchasing newly issued equity directly from issuers in the primary market, or indirectly from domestic investors in the secondary market. In contrast, the lagged effect is consistent only with an indirect channel: foreign investors purchase existing shares from domestic investors in the secondary market before any new shares are available for purchase in the primary market. Our findings that capital inflows are associated with both current and future equity issuances suggest that both channels are important.

Second, we focus attention on the period of global liquidity brought by expansive monetary policy after the 2008 global financial crisis. As interest rates in advanced economies remained low, foreign investors were attracted to the higher returns in emerging economies (Fratzscher, 2012). We analyze the issuance behavior after the global crisis, when

capital inflows were more likely to be supply-driven, and find that issuers raised significantly more equity during that period in response to a given capital inflow.

Third, to further test for supply-side effects we instrument equity inflows received by a country with the lagged weight of that country in the MSCI Emerging Markets stock index. Some foreign investors, such as emerging market mutual funds, follow closely the MSCI index when setting their portfolio holdings (Raddatz et al., 2017). When those investors receive additional funds from their ultimate fund suppliers, they invest those funds into emerging economies' equity markets according to the weights of those economies in the MSCI index. The time variation of MSCI weights across countries captures, in part, the decision of MSCI regarding each country's loading factor.² Changes in weights are known to affect the behavior of institutional investors investing in these countries, and changes in lagged weights are unlikely to be related to local contemporaneous demand-side influences on a subset of domestic firms (i.e., those who issue relatively large amounts of equity). We find that instrumented inflows substantially increase the predicted value of equity raised by large issuers.

We complement the analysis of issuance activity by studying how issuers use the funds raised in their equity offerings. First, we estimate the effect of capital inflows on a variety of potential uses of funds: capital expenditures (CAPEX), corporate acquisitions, research and development expenses (R&D), inventory accumulation, cash accumulation, and long-term debt reduction.³ We find that issuers tend to increase corporate investment (CAPEX, acquisitions, and R&D) significantly when foreign equity capital becomes available. They also tend to accumulate cash and inventories, and reduce their long-term

² For a given set of MSCI weights, changes in the market value of any equity in the portfolio will also influence investors' decisions, as investors allocate further injections of capital according to the new weights.

³ These are the six uses of funds analyzed by Kim and Weisbach (2008) and Erel et al. (2011).

debt. Second, we measure the increases in each use of funds over a variety of time intervals, ranging from one year to four years. Our estimates indicate that the largest use of funds is corporate investment (CAPEX plus acquisitions plus R&D): for every million U.S. dollar raised in an offering, large domestic issuers and foreign issuers combined spend on average 0.90 million U.S. dollars on investment four years after the issuance.

Using a back-of-the-envelope calculation, our analysis indicates that every million U.S. dollar of foreign equity capital is associated with an increase in more than one-half million U.S. dollars of corporate investment. That is the result of 0.62 million U.S. dollars of additional issuance times 0.90 million U.S. dollars of additional spending on investment. The relaxation of financing constraints resulting from capital inflows allows emerging market firms to finance new investments. We conclude that equity issuance is an important channel through which capital inflows affect real economic activity.

Our paper is related to different strands of the literature. Three are worth mentioning here. First, there is a growing literature on how aggregate economic activity is affected by both the liberalization of capital flows (Henry, 2000a; Henry, 2000b; Bekaert et al. 2005; Kose et al. 2010) and equity capital inflows per se (Reisen and Soto, 2001; Durham, 2004; de Vita and Kyaw, 2009; Ferreira and Laux, 2009; Aizenman et al., 2013; Agbloyor et al., 2014; Baharumsah et al., 2015). Several papers in this literature show that equity inflows are associated with a boom in aggregate investment and higher economic growth of the recipient countries. However, we know relatively little about the channels through which capital inflows affect real economic activity.⁴ Other studies examine firm-level data and conclude that capital inflows can increase economic growth by boosting firm growth,

⁴ Gupta and Yuan (2009) and Mitton (2006) use industry-level data and firm-level data to study the effects of liberalizing equity markets on industry growth firms' operating performance, respectively.

particularly in industries more dependent on external finance (Levchenko et al., 2009; Igan et al., 2016). But these studies do not explore the channel through which capital inflows can affect firm performance.

Our paper adds to this first strand of the literature by studying for the first time the effects of capital inflows using issuance-level data. We show that the influx of foreign capital allows some firms to raise new financing and expand investment, which might be behind the patterns documented in the literature using country-level and firm-level information. Moreover, our paper shows that the effects are not uniform across types of firms. Some firms are prompted to issue new equity as capital inflows reduce the cost of equity finance, but other firms do not. That finding suggests that capital inflows may provide a competitive advantage to large issuers. Other firms, however, could benefit indirectly from the equity issuance of financial firms or large issuers. For example, large issuers might provide more abundant trade credit to other firms, or increase demand for their products and services, and financial firms might use their new equity in support of greater lending to local firms.

Second, our paper contributes to another literature that asks why firms issue equity and bonds geared toward foreign investors. Part of this literature has studied firms' issuance activity in international markets, characterizing which firms issue abroad and why. Foreign markets can offer benefits compared to domestic markets in terms of access to foreign investors, better financing conditions, greater visibility, and enhanced corporate governance, among others (Benos and Weisbach, 2002; Pagano et al., 2002; Doidge, 2004; Karolyi, 2006; Schmukler and Vesperoni, 2006; Claessens and Schmukler, 2007; Doidge et al, 2009; Chen et al., 2014; Herrmann, et al., 2015; Turk Ariss, 2016). Other papers argue that, as liquidity became more abundant in the aftermath of the global financial crisis of 2008-09, firms issued

more foreign currency bonds to take advantage of carry-trade opportunities (Chui et al., 2014; Powell, 2014; Caballero et al., 2016; Bruno and Shin, 2017).

Although this second strand of the literature assumes that issuances abroad or in foreign currency target foreign investors, it has not shown that facilitating foreign investor participation actually influences equity issuance. In practice, it is hard to track the influence of foreign investors on firm behavior because there are no data identifying the nationality of who buys each security. We approach that question by showing that greater foreign inflows result in greater equity issuance in both domestic and foreign markets. Importantly, we show that shocks from the supply side are important in driving the connection between capital inflows and equity issuances.

Third, another literature (Pagano et al., 1998; Brown et al., 2007; Kim and Weisbach, 2008; Erel et al., 2011; Didier et al., 2015) analyzes how firms use new capital market financing from various sources. We complement this strand of the literature by linking the use of funds with inflows of foreign capital. In particular, we study how shifts in the supply of equity financing affect the uses of funds by emerging market firms that raise capital during foreign equity capital inflows. We find that firms use proceeds primarily to expand investment, and also to retire debt and accumulate cash.

The rest of this paper is organized as follows. Section II discusses the data sources. Sections III and IV report the results of the country- and firm-level results, respectively. Section V describes how we deal with endogeneity concerns. Section VI reports the use-of-funds analysis. Section VII concludes.

II. Data

We collect data on equity capital inflows using balance of payments information from the International Monetary Fund (IMF). The IMF provides data on annual private gross capital inflows and outflows by category: foreign direct investment, portfolio equity, portfolio debt, bank credit, and others. We focus on portfolio equity inflows, defined as the difference between foreign purchases of domestic shares and foreign sales of domestic shares. Equity inflows are positive (negative) when foreign investors purchase more (less) domestic securities than what they sell. Foreign retail purchasers and foreign institutional investors (such as mutual funds, pension funds, hedge funds, and sovereign wealth funds) make the foreign purchases and sales of domestic shares. Those investors purchase both existing and newly issued shares.

Our sample consists of the 25 emerging market countries included in the MSCI Emerging Markets index (explained below) during the 25-year period 1990-2014. The countries are: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Jordan, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, South Korea, Thailand, Turkey, and Venezuela.

In our paper, we focus mainly on positive equity inflows, which represent more than 75% of all inflow observations.⁵ Our focus on positive inflows reflects our goal to analyze whether firms issue more equity after an arrival of foreign capital arrives to their country, and how those equity proceeds are employed. Negative capital inflows, on the other hand, represent a departure of foreign capital. Although it is conceivable that firms might repurchase equity when foreign capital departs their country (a negative issuance), existing

empirical evidence finds no connection between outflows and investment behavior by publicly traded firms, which suggests that negative issuance is not a common response to outflows.⁶ Our issuance data (explained below) does not provide information on stock repurchases, so we focus on the positive issuance implications of positive capital inflows. However, in our robustness analysis, we analyze the effects of negative inflows on equity issuance. Our findings confirm the view that negative equity inflows generally do not result in negative issuance. Specifically, we find that negative issuance tends to produce an asymmetric response in equity issuance. Negative inflows reduce issuances only slightly, and even large negative inflows are, therefore, still associated with large positive issuances.

The data on equity issuance activity comes from the Thomson Reuters Security Data Corporation Platinum database (SDC Platinum). This database provides transaction-level information on new issuances of common equity by publicly traded firms. The transactions include seasoned equity offerings and initial public offerings. The data distinguishes between issuances in international and domestic equity markets. An issuance is classified as international market if the firm's country of origin is different than the country where the equity was raised. SDC classifies the majority of newly issued shares that are destined to become depository receipts (including American Depositary Receipts and Global Depositary Receipts) as international issuances. Equity issuances are sold to a combination of domestic and foreign investors. We have data on a total of 17,682 issuing firms. We include both financial and non-financial firms, both of which have significant shares of the issuance activity. The issuance activity of financial firms is relevant for the financing of investment by

⁶ Tong and Wei (2010) and Claessens et al. (2012) investigate stock price reactions and real investment changes associated with the large capital outflows produced by the recent global financial crisis. They find a significant negative effect on stock price, but no effect on investment. That finding is consistent with firms not responding to capital outflows and lower stock prices by significant repurchases of their shares.

non-financial corporations, although financial firms do not directly engage in capital investment. Our results on issuance activity are robust to excluding financial firms from our sample.⁷

Table 1 reports summary statistics of issuance activity by country. Column 1 reports the number of firms included in the sample. Columns 2 and 3 show the average annual value of equity proceeds for all firms in a country and the value of proceeds per firm, respectively. In a typical year, the average firm in the sample issued equity worth 9 million U.S. dollars. Column 4 reports the annual frequency of equity issuance, defined as the average fraction of firms that issue equity in a given year. On average, 16% of firms issue equity in a typical year. Columns 5 to 8 report separate statistics for international and domestic issuances. The average number of firms that issue in domestic markets is around 8 times larger than the number of firms that issue in international markets. However, the average issuance size of firms that issue abroad is 70% larger than the size of domestic issuances (12 vs. 7 million U.S. dollars).

For the use-of-funds analysis, we complement the SDC data by merging it with Worldscope data, which provide information on firms' financial statements (balance sheets and cash flow statements). The Worldscope data are available for 55% of the firms contained in the SDC database, resulting in a merged dataset of 9,472 firms.

For the instrumental-variable analysis, we collect data from the MSCI Emerging Markets Index, for the period 1996-2014.⁸ The MSCI index is a stock market index covering 25 emerging markets countries representing 10% of global stock market capitalization. The

⁷ Appendix Tables 1 and 2 report the results of estimating the main country-level and firm-level regressions excluding financial firms from the sample, respectively. The results remain unchanged.

⁸ The instrumental variable analysis is restricted to the sample 1997-2014 because the MSCI weights are available only from 1996 onwards and because we lag MSCI weights by one year.

index covers approximately 85% of the free float-adjusted market capitalization in each country. The index is maintained by MSCI Inc., formerly Morgan Stanley Capital International, and is used as a common benchmark for international equity mutual funds (Raddatz et al., 2017).

III. Capital Inflows and Issuance Activity in the Aggregate

As explained in the Introduction, Figure 1 displays the relation between global capital inflows and global equity issuance values. These two worldwide time series are significantly positively correlated: the correlation coefficient is 0.56 (statistically significant at the 1% level). In Appendix Figure 1, we plot the time series of global equity inflows scaled by GDP and global equity issuances scaled by GDP. The correlation coefficient between both variables is 0.43, significant at the 1% level.

To control for country and year effects, we estimate the following country-level panel regression:

$$\log(1 + Issuance)_{ct} = \alpha_c + \alpha_t + \beta \log(Inflows)_{ct} + \varepsilon_{ct}, \quad (1)$$

where $Issuance_{ct}$ denotes the value of equity issuance proceeds (in million U.S. dollars) by all firms of country c in year t and $Inflows_{ct}$ refers to equity capital inflows (in million U.S. dollars) received by country c in year t . We use the log of issuance plus 1 (million U.S. dollars) to account for country-year observations with 0 issuances (13% of the total). α_c and α_t capture country and year fixed effects, respectively. We cluster standard errors of this regression, and all other regressions reported below, by country and year.⁹

⁹ Our results remain unchanged if we cluster standard errors at the country level.

Table 2 shows a highly significant positive relation between capital inflows and country-level issuance proceeds in emerging markets. Column 1 shows that the elasticity of issuances to inflows is 0.55. Thus, a 60% increase in equity inflows (the average growth rate of inflows in our sample) is associated with a 33% increase in the value of equity issuance proceeds. The result implies that for the typical country in a typical year, every million U.S. dollar of equity capital received from foreign investors is associated with an increase in the value of equity proceeds of 0.62 million U.S. dollars.¹⁰

Table 2, columns 2 and 3 show estimations of Equation (1) separately for issuances in domestic and foreign equity markets. The effect of capital inflows is statistically the same and quantitatively similar for both types of issuances. That is, issuances increase in both domestic and foreign markets when capital enters a country.

The response of equity issuances to capital inflows documented in Table 2, columns 1-3 reflects a combination of two margins of adjustment: the increased likelihood of firms' issuing equity ("extensive margin") and the increased amount of equity proceeds conditional on firms' issuing equity ("intensive margin"). To measure the relative importance of these two margins, we consider two different dependent variables. First, to measure the extensive margin, we use as dependent variable an indicator variable equal to 1 if country-level issuance proceeds are positive in a given year. For the intensive margin, we condition the sample to strictly positive issuances, and we use as the dependent variable the log of issuance (because all observations are strictly positive there is no need to define the amount as the log

¹⁰ To calculate the dollar effects, we first calculate the predicted equity issued for each country-year pair by replacing the corresponding equity inflows into Equation (1) and using the estimated coefficients from the regression results. As fixed effects, we use the coefficients for each year and country for the corresponding country-year pair. We then increase equity inflows by one million U.S. dollars and repeat the procedure, which yields the new predicted issuance. Next, we compute the difference between the two predicted values. For each country, we average the differences across all years and report the value for the median country.

of $1 + \text{issuance}$). Columns 4 and 5 report the estimates of the extensive and intensive margins, respectively. Both coefficients are statistically significant, indicating that when a country receives foreign inflows it is more likely to issue equity, and that the amount issued in years of positive issuance also increases. The fact that the value of equity raised by the country receiving inflows increases means that the value raised by issuing firms increases, that more firms issue equity, or both.¹¹

To make sure that our results are not affected by the log specification or by the exclusion of negative inflows, we re-estimate Equation (1) scaling country issuances and all observed equity inflows (positive and negative) by GDP. Table 3 reports the results of this alternative specification. Increases in capital inflows, relative to GDP, are strongly correlated with greater equity issuances, relative to GDP. This holds for all equity issuances, as well as domestic and foreign issuances separately. As with the previous results, both the intensive and extensive margins contribute to the results.

We also report results separately for negative equity inflows relative to GDP in Table 3. Interestingly, the coefficient magnitude is much smaller and statistically insignificant, suggesting only a small reduction in issuances when capital inflows are highly negative. For the subset of observations where capital inflows are negative, the mean of issuances relative to GDP is 0.0063. The mean and standard deviation of equity inflows for this subsample are -0.0050 and 0.0086, respectively. Thus, assuming a coefficient magnitude for the response of issuances to negative inflows that is two standard errors above the estimated value of 0.0664 (0.19), a two-standard deviation increase in negative inflows (0.017) is associated with a positive amount of predicted issuance (the mean of 0.0063 minus $0.0032 = 0.19 \times 0.017$). This

¹¹ The intensive-margin results should be interpreted with caution, because the sample is restricted to observations with strictly positive issuances, which might induce a selection bias.

implies that even when equity inflows are highly negative, issuances are not near the zero truncation point. This finding suggests that the failure to observe negative issuance (i.e., repurchases) is likely not an important problem because issuances remain positive even when capital inflows are highly negative.

The results reported here document an important factual discovery, namely the strong relation between country-level equity inflows and equity issuance proceeds. An equity inflow means that foreign investors are purchasing domestic stocks. In principle, foreign investors might be purchasing existing shares, which implies a transfer of ownership between foreign and domestic investors. Domestic investors could invest some of the proceeds received from the sale of their shares to foreign investors elsewhere in the domestic economy. Our results indicate, however, that capital inflows have can have an additional effect on the domestic economy above and beyond the effect that results from a transfer of ownership between investors. Foreign participation, and the global diversification that results from it, leads firms to issue new equity into the market. This effect on issuance can occur via a direct or indirect channel. We label the direct channel as foreign investors' purchases in newly issued shares in the primary market. The indirect channel occurs when domestic investors purchase the new shares in the primary market using the proceeds they received from selling their previously held shares to foreign investors in the secondary market. In the results reported thus far, we are unable to distinguish between the direct and indirect channels.

IV. Capital Inflows and Firms' Issuance Activity

To analyze the impact of equity capital inflows on firms' issuance activity, we estimate a firm-level pane regression accounting for firm and year fixed effects:

$$\log(1 + Issuance)_{ict} = \alpha_i + \alpha_t + \beta \log(Inflows)_{ct} + \varepsilon_{ict}, \quad (2)$$

where $Issuance_{ict}$ is the value of equity raised (in million U.S. dollars) by firm i in country c in year t . Firms issue equity sporadically, so firm issuances exhibit lumpy behavior. As in the previous section, we add a 1 (million U.S. dollars) to the log of issuances to account for firm-year observations with 0 issuances.¹² α_i and α_t denote firm and year fixed effects, respectively.

Table 4 reports the results. Interestingly, column 1 shows that the effect of capital inflows on firm-level issuance is not statistically different from 0 for the whole sample of publicly traded firms. To explore this result further, we estimate Equation (2) separately for issuances in foreign and domestic equity markets (columns 2 and 3, respectively). We find a strong positive relation between capital inflows and foreign issuances, but no relation between inflows and domestic issuances. As documented above, the size of international issuances is 70% larger, on average, than the size of domestic issuances, suggesting that the response to capital inflows might depend on issuance size. To analyze that possibility, we divide the sample of domestic-equity issuers into two groups: “large issuers” and “small issuers.” We define a “large equity issuer” dummy equal to 1 if the average domestic equity proceeds of a firm during our sample period is larger than the median average equity proceeds of all firms in the same country and sector.¹³

¹² We construct the firm-level panel dataset as follows. First, we define the starting year of a firm as the first year in which the firm appears in either the SDC or Worldscope databases. Next, we define the ending year of the firm as the last year in which the firm appears in SDC or Worldscope. Finally, we construct the time series of issuances for each firm by filling in 0s between the starting and ending year for all years in which the firm does not issue equity.

¹³ We classify sectors into 10 broad SIC industries. The value of equity raised by large issuers in domestic equity markets is 7 times larger than the value raised by small issuers (=1,946,896/290,657).

Column 4 augments Equation (2) with an interaction term between capital inflows and the large issuer dummy.¹⁴ The interaction term is positive and highly significant. This implies that large issuers drive the positive relationship between inflows and country issuances documented in the previous section. The elasticity of 0.1 implies that a 60% increase in equity inflows (average growth rate of inflows) is associated with a 6% increase in the value of equity proceeds raised by large domestic issuers, relative to small issuers. The elasticity of large domestic issuers to inflows is similar in size to the elasticity of foreign issuers (0.1 versus 0.09). In column 5, we add interacted country-year fixed effects to the specification (α_{ct}).¹⁵ This is our preferred specification, because it allows us to control for all time-varying country shocks. The coefficient of interest is identified purely from the within-country variation between large and small issuers. The interaction term remains highly significant.

The heterogeneous results of capital inflows on large and small issuers can be explained by foreign investors having a preference for large issuers, in the domestic market or the international one. International institutional investors tend to be large relative to domestic ones and favor allocating their investments in few large companies that are well known and liquid, so that they have less impact on prices when trading shares. Consequently, large issuances take place when those investors increase their appetite to invest in the country, while small issuances are not sensitive to foreign investors' behavior.

Because the large issuer dummy is constructed using the complete sample period, it could be affected by capital inflows. In particular, large-issuing firms could be large to begin

¹⁴ We estimate the regression: $\log(1 + Issuance)_{ict} = \alpha_i + \alpha_t + \beta \log(Inflows)_{ct} + \gamma \log(Inflows)_{ct} \times LargeIssuer_{ic} + \varepsilon_{ict}$.

¹⁵ The effect of capital inflows, which varies at the country-year level, is absorbed by the country-year fixed effects. The equation for the new specification with interacted country-year fixed effects is: $\log(1 + Issuance)_{ict} = \alpha_i + \alpha_{ct} + \gamma \log(Inflows)_{ct} \times LargeIssuer_{ic} + \varepsilon_{ict}$.

with or can become large as a result of the inflows. To shed light on this issue, we compare the first and average subsequent issuance amounts of firms that issued domestic equity more than once during our sample.¹⁶ We compare the average of the first issuance between large and small issuers and then make the same comparison for subsequent issuances. We find that subsequent issuances are similarly larger than first issuances for both large and small issuers, indicating that all issuers raise similarly larger amounts of equity over time.¹⁷ The growth of issuance size is 130% for large and 150% for small issuers. This evidence suggests that the firms we classified as large issuers were prone to issue larger amounts to begin with; it is not the case that they become relatively large issuers as a result of capital inflows.

Next, we decompose the value of individual firm issuances into extensive and intensive margins. For the extensive margin, we use as the dependent variable an indicator variable equal to 1 if the firm issued equity in a given year. For the intensive margin, we condition the sample to strictly positive issuances. Table 5 reports the results. Panel A shows the results of domestic issuances for our preferred specification with firm and country-year fixed effects. Panel B shows the results for foreign issuers using only firm and year fixed effects. For reference, we re-display the previous results in column 1.

According to column 2 of Panel A, a 60% increase in inflows is associated with a 1.1 percentage point increase in the probability that large issuers will raise equity in that year, relative to small issuers ($=60 \times 0.0175$). This represents a 7% increase in the likelihood of issuing equity, relative to the average issuance probability ($=1.1\%/16\%$). From column 3, we

¹⁶ 28% percent of the firms in our sample issued domestic equity more than once, accounting for roughly half of the observations.

¹⁷ The average values of the first and subsequent issuance of large issuers are 163.04 and 210.18 million U.S. dollars, respectively. For the small issuers, the average values of the first issuance and subsequent issuance are 22.65 and 33 million U.S. dollars, respectively. This evidence is consistent with the work of Didier et al. (2014), who find that firms grow faster after issuing securities.

observe that there is no association between capital inflows and the amount of issuances, conditional on issuing. Panel B shows the same result for foreign issuers: the extensive margin drives the entire response of foreign issuers to capital inflows. This implies that the firm-level extensive margin response explains both the country-level intensive and extensive margin responses. When a country receives foreign inflows, foreign issuers and large domestic issuers are more likely to issue equity, which increases the likelihood that the country as a whole issues equity and increases the value of equity raised by the country.

Lastly, we explore the characteristics of large-issuing firms. We collapse the sample into a single cross-section by taking the time average of all observations and regress the large issuer dummy on a series of firm characteristics, sector and country fixed effects.¹⁸ To perform this analysis, we need financial-statements information, so we use the merged SDC-Worldscope data. We consider four central firm-level attributes: size (measured by total assets), stock liquidity (measured by stock turnover in a given year), international presence (measured by a dummy if the firm has ever issued a depository receipt), and investment opportunities (measured by the market-to-book equity ratio). Table 6 reports the results of adding different firm-level characteristics sequentially. The last column controls for all characteristics simultaneously. From the table, we observe that large issuers tend to be large firms (measured by total assets), with high international presence, relatively liquid stocks, and high market-to-book equity ratios. It is not surprising that these characteristics are also associated with greater measured responsiveness to foreign investment, as reflected in the higher estimated responses of these firms to capital inflows.

¹⁸ In particular, we regress: $LargeIssuer_{ics} = \alpha_s + \alpha_c + \beta Characteristic_{ics} + \varepsilon_{ics}$.

V. Endogeneity

As discussed in the Introduction, an increase in issuance activity could reflect an increase in foreign equity funding supply or domestic equity funding demand, or some combination of the two. Equity inflows could be the result of supply-side “push” factors, such as increased global liquidity or global appetite for risk, or the result of demand-side “pull” factors, like improved investment opportunities. Forbes and Warnock (2012) document that push factors are more important than pull factors in explaining capital inflow episodes in emerging economies. To analyze this issue more carefully, this section provides three pieces of evidence suggesting that our results are driven in part by an increase in foreign equity supply.

First, we regress equity issuance on one-year lagged equity capital inflows. Although it is possible that equity inflows could respond to increased contemporaneous equity demand, it is less likely that inflows respond to one-year ahead equity demand. Columns 1 and 4 of Table 7 report the results of estimating Equation (2) using one-year lagged equity inflows instead of contemporaneous inflows as independent variable. We find that issuance activity correlates strongly with one-year lagged equity inflows for both large domestic issuers and foreign issuers. To examine whether serial correlation might confound the use of lagged capital inflows, we experiment with including lagged and contemporaneous inflows (in columns 2 and 5), and with including contemporaneous and future equity inflows (in columns 3 and 6). We find that issuance activity remains positively correlated with one-year lagged equity inflows even in the presence of contemporaneous inflows. This shows that lagged inflows are not predicting issuances mainly because they are predicting contemporaneous inflows. Similarly, contemporaneous inflows are strongly correlated with contemporaneous issuances, although future inflows are not correlated with

contemporaneous issuances, meaning that the anticipation of inflows does not lead firms to issue. Rather, only when inflows actually enter the country do firms raise capital.

Aside from addressing the issue of potential endogeneity, the results with the lagged inflows also are informative about whether foreign funds that are only used to purchase equity in the secondary market are able to affect issuance. The contemporaneous correlation between capital inflows and issuance could indicate that foreign investors are purchasing the equity directly from firms in the primary market or indirectly from domestic investors in the secondary market. In contrast, the correlation between issuances and lagged inflows is entirely indirect, as shares issued in response to inflows do not need to be issued in the same year as the inflows enter the country. Thus, the significance of the lagged effect demonstrates that the impact of capital inflows on equity issuance does not require that new issuances be sold directly to foreign investors.¹⁹

Second, we focus on the episode of global liquidity after the 2008 global financial crisis. The crisis triggered unprecedented policy interventions by central banks around the globe. For example, the Federal Reserve resorted to unconventional monetary policy through large-scale purchase programs, commonly known as “quantitative easing” (QE). The crisis itself was associated with capital outflows from emerging market countries and significant declines in equity prices. As interest rates in developed economies remained low, investors were attracted to the higher returns in emerging economies and capital flowed in, especially in emerging market countries with institutional conditions that were attractive to

¹⁹ Stulz (2005) shows that equity market ownership by insiders in emerging market countries is often quite large, implying that float may be limited. That fact could conceivably make it challenging for foreign investors to purchase equity in the domestic market for some firms. Therefore, limited float could weaken the relation between lagged capital inflows and future issuance for low-float firms, relative to the relation between current capital inflows and issuance. The fact that the two responses are similar for the large-issuer sub-sample of firms indicates that problems of limited float are not very important for understanding the issuance behavior of large-issuer firms.

investors (Fratzscher 2012; Karolyi 2015).²⁰ Recent evidence shows that QE episodes accounted for most of the variation in capital inflows to emerging economies during 2009-2013 (Khatiwada, 2017). We use the QE episodes as plausibly supply-driven changes in capital inflows.

We define a “post-crisis dummy” equal to 0 for 2008 and equal to 1 for the period covering the different QE episodes: 2009-2010, 2009-2011, and 2009-2013.²¹ We estimate Equation (2) using the interaction between the post-crisis dummy and the large equity issuer dummy as independent variable. Table 8 reports the results (Panel A). The interaction coefficient is significant in two of the three specifications. The results indicate that after the global financial crisis, large domestic issuers increased their equity issuance proceeds, relative to small issuers, by 27% and 33%, respectively (average coefficient of three specifications).

For completeness, in Panel B we report the results for foreign issuers. The effect is significant in all specifications, but should be interpreted with caution. In Panel A, we compare the effect of the post-crisis dummy on large domestic issuers relative to small issuers. For foreign issuers, we don’t have a comparison group, so the estimated effect could be capturing other time-varying shocks correlated with the post-crisis dummy.

In our third test for supply-side effects, we instrument equity inflows with the lagged MSCI Emerging Market Index country weights. The instrument builds on the evidence reported by Raddatz et al. (2017), who show that emerging market mutual funds follow closely the MSCI index. Both active and passive mutual funds follow the index, but passive

²⁰ As mentioned in Chari et al. (2017), the surge in capital inflows led Brazilian President Dilma Rousseff to claim that advanced economy monetary policy had unleashed a “monetary tsunami” in the developing world. Also, the governor of Taiwan’s central bank, Perng Fai-Nan, echoed this sentiment by stating that “The U.S. printed a lot of money, so there’s a lot of hot money flowing around. We see hot money in Taiwan and elsewhere in Asia.”

²¹ QE1, QE2, and QE3 (pre-tapering) episodes took place between November 2009 and March 2010, November 10 and May 2011, and September 2012 and April 2013, respectively.

ones do so more tightly. The logic of the instrument is that when mutual funds receive a flow of money, they invest it into emerging economies according to the weights of those countries in the MSCI index. Specifically, our exclusion restriction is the assumption that the lagged weights are exogenous to the relative propensity of large-issuance firms to issue securities at that point in time.

The weights are determined over time by MSCI, according to which countries belong to the index and other factors such as the ability to invest in each country. Moreover, the weights change according to the market capitalization of each country relative to that of all other countries in the index. The past decisions of the MSCI and the past performance of other countries are not driven by the demand decision of firms to raise new capital. On other hand, they affect how investors allocate their supply of capital.

Table 9 reports the results of the first-stage and second-stage regressions.²² Column 1 reports the first-stage regression. It shows that the instrument is positively and highly correlated with equity capital inflows. The F-statistic is 27.9, indicating a powerful first-stage influence of the instrument.²³

Columns 2 and 3 of Table 9 shows the results of the second-stage regression, for large domestic issuers (column 2) and foreign issuers (column 3).²⁴ Consistent with the OLS results reported in the previous section, we find that when a country receives a supply-driven capital inflow, large domestic issuers issue more equity (column 2). A Sargan-Hansen test for

²² The first-stage regression is: $\log(Inflows)_{ct} = \alpha_c + \alpha_t + \beta \log(Weight_{ct-1}) + \varepsilon_{ct}$.

²³ We also tried using two-year and three-year lagged weights of the MSCI, which should be even less related to contemporary demand shocks. Although the effect remains significant, the power of the instrument decreases with more lags, as one would expect. For this reason, we focus on the one-year-lag specification, which provides the strongest first-stage relation.

²⁴ The instrumental variable for the interaction between capital inflows and the large issuer dummy is the interaction between our instrument and the large issuer dummy. In particular, we estimate the following second-stage regression for domestic issuers: $IssuanceActivity_{ict} = \alpha_i + \alpha_{ct} + \gamma \widehat{Inflows}_{ct} \times LargeIssuer_{ic} + \varepsilon_{ict}$, where $\widehat{Inflows}_{ct}$ denotes the fitted values of the first-stage regression. For foreign issuers, we estimate: $IssuanceActivity_{ict} = \alpha_i + \alpha_t + \gamma \widehat{Inflows}_{ct} + \varepsilon_{ict}$.

equality of coefficients indicates that the IV and OLS coefficient estimates are not statistically different in specifications reported in Tables 8 and 9.

VI. Capital Inflows and Use of Funds

Having established a connection between equity capital inflows and equity issuances, we now study the ways firms use the funds raised in the equity offerings. We perform the analysis using the merged SDC-Worldscope data. Following the approach of Kim and Weisbach (2008) and Erel et al. (2011), we focus on six uses of funds: CAPEX, acquisitions, R&D, inventory accumulation, cash accumulation, and long-term debt reduction.²⁵ We report results for all firms in Tables 10 and 11, but in the Appendix we also report analogous results for a subsample that is restricted to nonfinancial issuers. The results are nearly identical. This reflects the fact that nonfinancial issuers are the majority of our sample (representing more than four-fifths of our observations). The categories of uses of funds defined here may not be ideal for financial firms, which we intend to analyze in future work using a larger sample and a different set of fund use categories.

First, we re-estimate Equation (4) using each of these uses of funds as dependent variables. Table 10 reports the results. Column 1 of Panel A shows that a 60% increase in inflows (the average growth rate of inflows in our sample) leads large domestic issuers to increase their capital expenditures by 6%, relative to small issuers. The response of foreign issuers is similar in magnitude. According to Table 10, after the arrival of equity inflows, issuers tend to undertake more corporate acquisitions and invest more in R&D (although the

²⁵ We obtain the variables CAPEX, acquisitions, R&D, and long-term debt reduction from the cash flow statements and the variables inventory accumulation and cash accumulation from the balance sheets.

latter effect is estimated imprecisely). Table 10 also shows that increased equity inflows are associated with cash accumulation and a reduction in long-term debt.

The previous results reveal the connections between capital inflows and different uses of funds, but those connections do not make use of the role played by equity issuances in connecting capital inflows and uses of funds. To analyze the linkages among inflows, issuances and uses of funds, we first adopt the methodology of Kim and Weisbach (2008) and Erel et al. (2011). We focus on the six uses of funds described above, measuring the change in each use of funds over a variety of time intervals, ranging from one year to four years. Following those authors, we begin by calculating the use of funds after each firm's equity offering (whether caused by capital inflows or something else) by estimating the following regression for the equity offerings of domestic large issuers and foreign issuers combined:

$$\begin{aligned}
 Y_{ict} = & \alpha_c + \alpha_t + \beta \log \left[1 + \left(\frac{Issuance}{Assets} \right)_{ict} \right] \\
 & + \gamma \log \left[1 + \left(\frac{OtherSources}{Assets} \right)_{ict} \right] + \delta \log[Assets_{ict}] + \varepsilon_{ict},
 \end{aligned} \tag{5}$$

where $Y = \log[(\sum_{i=1}^n V_i / Assets) + 1]$ for the cash flow-statement items ($V = CAPEX$, acquisitions, R&D, long-term debt reduction), and $Y = \log[((V_t - V_0) / Assets) + 1]$ for the balance-sheet items ($V =$ inventory, cash holdings). $n=1,2,3,4$ denotes the years following the issuance. *Assets* denotes total assets in the year just prior to the equity issuance ($n=0$).

Other sources = $\log \left[\left(\frac{\sum_{i=1}^n (Total\ sources_i - Issuance)}{Assets} \right) + 1 \right]$, where total sources of funds represent the total funds generated by the firm internally and externally during a given year.

Table 11 reports the results of estimating Equation (5) separately for each use of fund, for each time interval considered. We report the estimated elasticities and also the

dollar effects, for the average firm of the typical country in a typical year.²⁶ The table shows that for every million U.S. dollar raised in an offering, issuers (domestic large plus foreign) increase CAPEX on average by 0.15 million U.S. dollars in the year after the offering. The effect on CAPEX increases to 0.26 million U.S. dollars when the equation is estimated over a four-year period. After four years, issuers spend 0.38 million U.S. dollars in acquisitions and 0.26 million U.S. dollars in R&D. Overall, the largest use of funds is corporate investment (CAPEX plus acquisitions plus R&D): issuers invest 0.90 million U.S. dollars of every million U.S. dollar raised in an equity offering.

Firms also spend important amounts of funds in accumulating cash and reducing long-term debt. After four years of an offering, issuers save in cash 0.34 million U.S. dollars of each million U.S. dollar raised and spend 0.34 million U.S. dollars to reduce or repay long-term debt. The fact that firms use a considerable fraction of funds for financial motives is consistent with a market timing channel. In particular, firms might take advantage of higher stock prices to issue equity (Baker and Wurgler, 2000). In fact, global equity inflows are positively correlated with global stock price returns in the time series.²⁷ However, the fact that firms spend a substantial amount of proceeds to fund corporate investment indicates that firms issue equity for additional reasons besides market timing. In particular, the results

²⁶ To calculate the dollar effects, we first calculate the predicted values of the dependent variables for each firm-year observation by plugging the actual values of firm issuances, other sources of funds, and total assets into Equation (5). For the fixed effects, we use the coefficients for each year and country of the corresponding country-year pair. We then re-calculate the predicted values of the dependent variables after adding one million U.S. dollars to the issuance value. Next, we calculate the difference of the two predicted values for each firm-year observation. To aggregate the differences, we first take the time-average of the differences per firm, we then take the median firm-average per country, and finally we take the median country in our sample.

²⁷ We collect data on countrywide stock price indices for each of the 25 countries in the sample. For each country, we calculate equity returns as the log ratio of stock price indices in two consecutive years. Then, for each year, we average equity returns across all countries. The coefficient of correlation between global equity issuances and global equity returns is 0.23, not statistically different from 0.

suggest that capital inflows might relax financing constraints, which allows firms to raise funds to finance new investments.

Overall, our results indicate that equity issuance is an important channel through which capital inflows can affect real economic activity. In the aggregate analysis, we document that one million U.S. dollar of equity inflows is associated with an increase in 0.62 million U.S. dollars of country-level equity issuances. On the other hand, we show that domestic large issuers and foreign issuers combined invest 0.90 million U.S. dollars of each million raised in an equity offering, respectively. Combining both results, a back-of-the-envelope calculation indicates that for every million U.S. dollar of equity capital received from foreign investors, emerging market firms increase corporate investment by more than one-half million U.S. dollars ($=0.62 \times 0.90$).

VII. Conclusions

There is a growing literature documenting that greater capital inflows are associated with important increases in aggregate investment and higher economic growth. A separate large literature studies the issuance activity of firms. This paper is the first to examine the link between capital inflows and issuance-level data and whether increases in equity capital inflows into emerging market countries are associated with increases in equity issuance and corporate investment by publicly traded firms.

We find that increases in equity inflows into emerging markets are associated with higher values of country-level equity issuance proceeds. This indicates that inflows imply more than a simple transfer of equity ownership from domestic to foreign investors. Using firm-level data, we show that issuers in international equity markets and large issuers in domestic markets drive this relation. We find that large issuers, which tend to be large firms

with liquid stocks, are more likely to issue equity in domestic markets when capital equity arrives from abroad. Instrumenting equity inflows with the MSCI emerging markets stock index country weights, we show that our results are driven in part by an increase in foreign equity capital supply.

Lastly, we find that large issuers invest a substantial fraction of the funds raised in equity offerings. Using a back-of-the-envelope calculation, we find that every million U.S. dollar of foreign equity capital is associated with an increase in more than one-half million U.S. dollars in corporate investment. The capital structure of the firm also changes significantly, as issuing firms reduce their debt. Issuing firms also increase their cash and inventory holdings. Our evidence is consistent with capital inflows relaxing financing constraints, which allows firms to raise funds to finance new investments. In all, our results indicate that equity issuance is an important channel through which capital inflows affect real economic activity.

Our work shows how panel data can provide unique insights on how subsets of firms drive aggregate relations. Our findings suggest that the issuance and investment behavior of some firms in emerging markets is highly responsive to equity inflows. But apparently many other emerging market firms are not the target of global market investors' share purchases. For those firms, large flows of funds connecting their countries to global markets have little direct effect on their propensity to issue equity. This suggests that it can be useful to divide firms in emerging economies into two categories: those for which equity capital inflows have important direct effects on the cost of issuing capital, and those for which they do not.

To the extent that equity inflows lower the cost of finance for large issuers, it remains to be seen how those benefits are shared, if at all, with other firms. It is possible that

large issuers pass through some of the benefits in the form of expanded demand for local firms' goods and services, an expanded supply of trade credit, higher acquisition prices, or other expansions of credit (especially by financial firms). More broadly, future work could examine the extent to which the selective reductions in the cost of equity issuance either promote greater efficiency in the economy (i.e., by reducing financing constraints for relatively productive firms, and by providing indirect benefits for other firms), or result in inefficiencies by increasing the market power of a small number of large firms.

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Figure 1: Global Equity Issuances and Equity Capital Inflows

This figure plots the total value of equity issued by firms in emerging markets (right axis) against total portfolio equity inflows to emerging markets (left axis). All values are reported in billions of constant 2011 US dollars. The time-series is reported for the period 1990-2014.

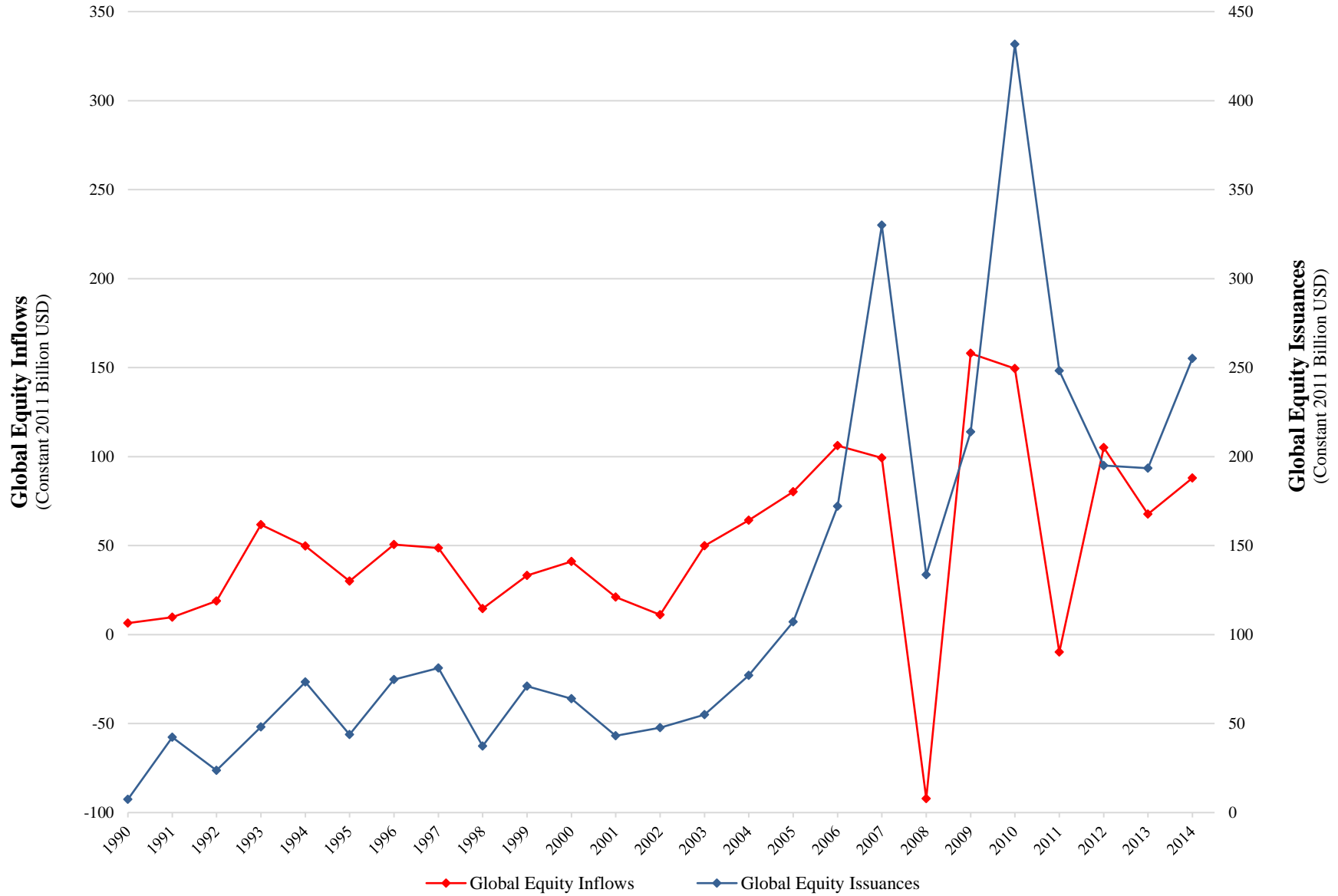


Table 1: Summary Statistics of Firms by Country

This table provides summary statistics of firms' equity issuance activity, within each emerging market, for the period 1990-2014. Columns (1)-(4) report values for all equity issuances, while columns (5)-(6) and (7)-(8) report values only for domestic and foreign equity, respectively. All issuance values are in millions of constant 2011 US dollars.

Country	All Equity Issuance / GDP				Domestic Equity		Foreign Equity	
	Number of Firms	Average Annual Issuance Value (Million USD)	Average Annual Issuance Value / Number of Firms (Million USD)	Frequency of Issuance	Average Annual Issuance Value (Million USD)	Average Annual Issuance Value / Number of Firms (Million USD)	Average Annual Issuance Value (Million USD)	Average Annual Issuance Value / Number of Firms (Million USD)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Argentina	131	1,080	8	13.4%	636	6	444	12
Brazil	467	14,102	30	13.8%	11,872	27	2,230	33
Chile	247	2,350	10	17.3%	1,950	8	401	11
China	3,445	46,581	14	17.6%	27,085	11	19,496	19
Colombia	103	1,014	10	23.1%	905	9	110	9
Czech Republic	15	123	8	12.6%	74	7	55	9
Egypt	184	780	4	22.8%	691	4	93	9
Hungary	42	301	7	13.5%	273	7	29	4
India	6,081	8,834	1	23.4%	7,502	1	1,332	6
Indonesia	535	4,622	9	11.8%	4,421	8	201	10
Israel	314	1,418	5	19.7%	603	6	864	4
Jordan	127	269	2	17.5%	264	2	5	1
Malaysia	1,162	4,247	4	10.2%	4,080	4	167	4
Mexico	260	5,904	23	14.3%	3,236	13	2,668	39
Morocco	53	244	5	15.6%	234	5	13	3
Pakistan	312	305	1	17.8%	231	1	75	11
Peru	72	271	4	13.4%	194	3	76	5
Philippines	244	2,000	8	12.2%	1,884	8	116	6
Poland	473	2,326	5	11.0%	2,137	5	188	14
Russia	269	6,706	25	25.4%	4,490	20	2,396	35
South Africa	230	2,596	11	10.8%	1,953	10	643	16
South Korea	1,852	11,238	6	13.4%	9,831	5	1,408	20
Thailand	701	3,445	5	11.1%	3,301	5	144	8
Turkey	263	1,848	7	9.7%	1,739	7	109	12
Venezuela	100	327	3	24.0%	263	3	67	11
	17,682	4,917	9	15.8%	3,594	7	1,333	12

Table 2: Capital Inflows and Equity Issuance Activity: Aggregate Evidence

This table presents country-level panel OLS regressions of the log of one plus aggregate equity issuance on the log of portfolio equity inflows. Columns (1), (4), and (5) report the analysis for all equity issuances. Columns (2) and (3) report the analysis only for domestic and foreign equity issuances, respectively. Issuance and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. All regressions include country and year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014.

	<u>Log(1+All Equity Issuance)</u>	<u>Log(1+Domestic Equity Issuance)</u>	<u>Log(1+Foreign Equity Issuance)</u>	<u>Dummy=1 if All Equity Issuance > 0</u>	<u>Log(All Equity Issuance)</u>
	(1)	(2)	(3)	(4)	(5)
Log(Equity Inflows)	0.5477 *** (0.091)	0.5835 *** (0.090)	0.5011 *** (0.083)	0.0316 ** (0.013)	0.4150 *** (0.055)
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Number of Observations	403	402	401	403	365

Table 3: Capital Inflows and Equity Issuance Activity: Aggregate Evidence, Alternative Specification

This table presents country-level panel OLS regressions with alternative specifications of measures of equity issuance on the ratio of portfolio equity inflows to GDP. The dependent variables in columns (1)-(3) are all, domestic, and foreign equity issuances, respectively, scaled by GDP. The dependent variable in column (4) is a dummy variable equal to 1 if the country-level issuance of all equity was positive in the respective year. The dependent variable in columns (5)-(7) is the ratio of all equity issuance to GDP, restricting the analysis to the observations with positive issuances, positive inflows, and negative inflows, respectively. Column (8) reports the results of a tobit regression, left-censored at zero, for all equity issuance observations. All variables are winsorized at the 1% level. All regressions include country and year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014.

	All Equity Issuance / GDP	Domestic Equity Issuance / GDP	Foreign Equity Issuance / GDP	Dummy=1 if All Equity Issuance > 0	All Equity Issuance / GDP (<i>Issuance > 0</i>)	All Equity Issuance / GDP (<i>Inflows > 0</i>)	All Equity Issuance / GDP (<i>Inflows < 0</i>)	All Equity Issuance / GDP (<i>Tobit, All Obs.</i>)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Equity Inflows / GDP	0.2277 *** (0.064)	0.1595 *** (0.053)	0.0632 *** (0.016)	2.0563 * (1.052)	0.2163 *** (0.065)	0.4969 *** (0.121)	0.0664 (0.061)	0.2391 *** (0.065)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	543	541	539	543	479	403	140	543

Table 4: Capital Inflows and Firms' Equity Issuance Activity

This table presents firm-level panel OLS regressions of the log of one plus equity issuance value on the log of portfolio equity inflows and their interaction with the large-equity-issuer dummy. Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. Column (1) reports the analysis for all equity issuances. Columns (2), (4), and (5) report the analysis only for domestic equity issuances. Column (3) reports the analysis only for foreign equity issuances. Issuance and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. Regressions in columns (1)-(4) include firm and year fixed effects, while column (5) includes firm and country-year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014.

	Log(1+All Equity Issuance)	Log(1+Domestic Equity Issuance)	Log(1+Foreign Equity Issuance)	Log(1+Domestic Equity Issuance)	
	(1)	(2)	(3)	(4)	(5)
Log(Equity Inflows)	0.0193 (0.018)	0.0161 (0.018)	0.0903 *** (0.016)	-0.0188 (0.020)	
Log(Equity Inflows)*Large Equity Issuer				0.1063 *** (0.033)	0.0910 *** (0.030)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	No
Country-Year FE	No	No	No	No	Yes
Number of Observations	123,819	114,646	16,131	114,646	114,646

Table 5: Capital Inflows and Firms' Equity Issuance Activity: Extensive and Intensive Margin

Panel A presents firm-level panel OLS regressions of firms' domestic equity issuance activity on the interaction of log of portfolio equity inflows with the large-equity-issuer dummy. Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. Panel B presents firm-level panel OLS regressions of firms' foreign equity issuance activity on the log of portfolio equity inflows. The dependent variable in column (1) is the log of one plus domestic (foreign) equity issuance value. The dependent variable in column (2) is a dummy variable equal to one if a firm issued domestic (foreign) equity in a given year, and zero otherwise. The dependent variable in column (3) is the log of domestic (foreign) equity issuance value. Issuances and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. Regressions in panel A include firm and country-year fixed effects, while panel B includes firm and year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014.

Panel A: Domestic Equity Issuers			
	Log(1+Domestic Equity Issuance)	Dummy=1 if Issued Domestic Equity	Log(Domestic Equity Issuance)
	(1)	(2)	(3)
Log(Equity Inflows)*Large Equity Issuer	0.0910 *** (0.030) .	0.0175 ** (0.007) .	0.1618 (0.114) .
Firm FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes
Number of Observations	114,646	114,646	18,101
Panel B: Foreign Equity Issuers			
	Log(1+Foreign Equity Issuance)	Dummy=1 if Issued Foreign Equity	Log(Foreign Equity Issuance)
	(1)	(2)	(3)
Log(Equity Inflows)	0.0903 *** (0.016) .	0.0181 *** (0.004) .	0.0139 (0.058) .
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Number of Observations	16,131	16,131	2,807

Table 6: Characteristics of Large Domestic Equity Issuers

This table presents firm-level cross-section OLS regressions of the large-equity-issuer dummy on firms' time-average characteristics. Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. All variables are winsorized at the 1% level. All regressions include country and sector (broad SIC divisions) fixed effects. Standard errors are clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2012.

	Large Domestic Equity Issuer Dummy				
	(1)	(2)	(3)	(4)	(5)
Log(Total Assets)	0.1198 *** (0.008)				0.1002 *** (0.009)
Log(Volume Traded)		0.0911 *** (0.017)			0.0518 *** (0.016)
Depository Receipts Dummy			0.3346 *** (0.030)		0.0251 (0.033)
Log(Market/Book Ratio)				0.0804 *** (0.021)	0.0814 *** (0.019)
Country FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes
Number of Observations	7,235	6,642	8,632	8,517	5,472

Table 7: Lags and Leads of Capital Inflows and Firms' Equity Issuance Activity

This table presents firm-level panel OLS regressions of the log of one plus equity issuance value on the 1-year lag, contemporaneous, and 1-year lead values of log portfolio equity inflows, in addition to their interaction with the large-equity-issuer dummy. Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. Columns (1) and (2) report the analysis only for foreign equity issuances. Column (3) and (4) report the analysis only for domestic equity issuances. Issuance and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. Regressions in columns (1) and (2) include firm and year fixed effects, while columns (3) and (4) include firm and country-year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014.

	Log(1+Domestic Equity Issuance)			Log(1+Foreign Equity Issuance)		
	(1)	(2)	(3)	(4)	(5)	(6)
Log(Equity Inflows _{t-1})*Large Equity Issuer	0.0785 *** (0.027)	0.0744 *** (0.024)				
Log(Equity Inflows _t)*Large Equity Issuer		0.0507 ** (0.021)	0.0837 *** (0.030)			
Log(Equity Inflows _{t+1})*Large Equity Issuer			0.0073 (0.034)			
Log(Equity Inflows _{t-1})				0.0637 ** (0.024)	0.0414 (0.030)	
Log(Equity Inflows _t)					0.1029 *** (0.029)	0.0908 *** (0.023)
Log(Equity Inflows _{t+1})						0.0193 (0.027)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	No	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	No	No	No
Number of Observations	112,708	95,869	96,692	16,032	14,044	14,091

Table 8: Equity Issuances after the Global Financial Crisis

Panel A presents firm-level panel OLS regressions of the log of one plus domestic equity issuance value on the interaction of a post-crisis dummy with the large-equity-issuer dummy. Panel B presents firm-level panel OLS regressions of the log of one plus foreign equity issuance value on the post-crisis dummy. Post-Crisis dummy is a variable equal to zero in the year 2008, and one in the years 2009-2010 (column (1)), 2009-2011 (column (2)), or 2009-2013 (column (3)). Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. Issuance and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. Regressions in panel A include firm and country-year fixed effects, while panel B includes firm fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014.

Panel A: Domestic Equity Issuers			
	Log(1+ Domestic Equity Issuance)		
	(1)	(2)	(3)
Post Crisis*Large Equity Issuer	0.2960 (0.130)	0.2474 * (0.087)	0.2590 ** (0.067)
Firm FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes
Number of Observations	25,498	34,059	43,357
Panel B: Foreign Equity Issuers			
	Log(1+ Foreign Equity Issuance)		
	(1)	(2)	(3)
Post Crisis	0.3791 * (0.112)	0.3111 ** (0.085)	0.2915 ** (0.073)
Firm FE	Yes	Yes	Yes
Year FE	No	No	No
Number of Observations	3,864	5,113	6,547

Table 9: Capital Inflows and Firms' Equity Issuance Activity, Instrumental Variable Approach

This table presents the first and second stage regressions for the 2SLS approach. Column (1) presents country-level panel OLS regression of the log of portfolio equity inflows on the log of the 1-year lag of MSCI emerging market weights. Columns (2) presents firm-level panel OLS regression of the log of one plus domestic equity issuance value on the interaction of log of portfolio equity inflows (predicted from the first stage) with the large-equity-issuer dummy. Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. Columns (3) presents firm-level panel OLS regression of the log of one plus foreign equity issuance value on the log of portfolio equity inflows (predicted from the first stage). Issuance and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. Regressions in panel A include firm and country-year fixed effects, while panel B includes firm and year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1997-2014.

	First Stage	Second Stage	
	Log(Equity Inflows)	Log(1+Domestic Equity Issuance)	Log(1+Foreign Equity Issuance)
	(1)	(2)	(3)
Log(MSCI Weight(-1))	0.5243 *** (0.118)		
Log(Equity Inflows)*Large Equity Issuer		0.2913 *** (0.041)	
Log(Equity Inflows)			0.3071 *** (0.101)
Firm FE	No	Yes	Yes
Country FE	Yes	No	No
Year FE	Yes	No	Yes
Country-Year	No	Yes	No
Number of Observations	273	73,253	11,965
Kleibergen-Paap Wald F-Stat	19.77

Table 10: Real Economic Effects

Panel A presents firm-level panel OLS regressions, for the sample of domestic equity issuers, of the log of one plus firm characteristics on the interaction of log of portfolio equity inflows with the large-equity-issuer dummy. Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. Panel B presents firm-level panel OLS, for the sample of foreign equity issuers, of the log of one plus firm characteristics on the log of portfolio equity inflows. The dependent variable firm characteristics are capital expenditure, net assets from acquisitions, research and development expenditure, inventory, cash and short-term investments, and reduction of long-term debt. All values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. Regressions in panel A include firm and country-year fixed effects, while panel B includes firm and year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014.

Panel A: Domestic Equity Issuers						
	Log(1+Capex)	Log(1+Acquisitions)	Log(1+R&D)	Log(1+Inventory)	Log(1+Cash)	Log(1+LT Debt Red.)
	(1)	(2)	(3)	(4)	(5)	(6)
Log(Equity Inflows)*Large Equity Issuer	0.1040 *** (0.0298)	0.0148 (0.0179)	0.0209 (0.0171)	0.0814 *** (0.0243)	0.1190 *** (0.0349)	0.0546 (0.0352)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	44,240	33,446	12,333	42,171	42,935	34,949
Panel B: Foreign Equity Issuers						
	Log(1+Capex)	Log(1+Acquisitions)	Log(1+R&D)	Log(1+Inventory)	Log(1+Cash)	Log(1+LT Debt Red.)
	(1)	(2)	(3)	(4)	(5)	(6)
Log(Equity Inflows)	0.1130 *** (0.0342)	0.0615 ** (0.0230)	0.0916 (0.0713)	0.0678 *** (0.0143)	0.0755 * (0.0409)	0.1120 ** (0.0466)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	7,758	7,960	4,461	6,679	6,755	8,292

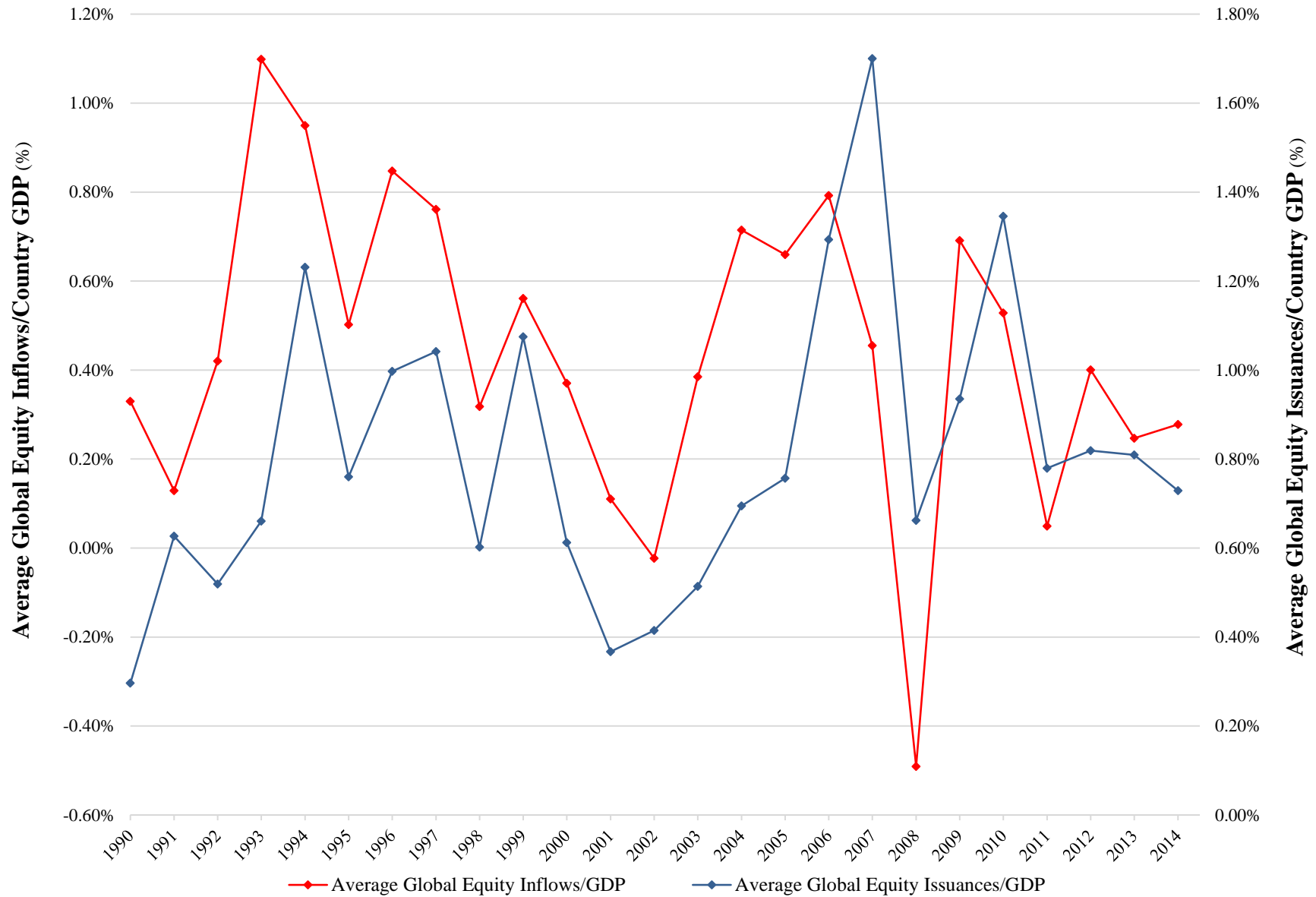
Table 11: Equity Issuances and Subsequent Use of Funds

This table presents firm-level panel OLS regressions for the use of fund analysis for the pooled sample of issuances by large domestic and foreign equity issuers. Large-equity issuers are firms whose time-average domestic equity issuance value is greater than or equal to the median of all firms' average issuances, within a country-sector. The analysis follows the specification of Kim and Weisbach (2008). The dependent variable for stock variables (inventory or cash and short-term investments) is $Y = \log[(V_i - V_0)/\text{Assets} + 1]$. The dependent variable for flow variables (capital expenditure, net assets from acquisitions, research and development expenditure, or reduction of long-term debt) is $Y = \log[(\sum_i V_i)/\text{Assets} + 1]$. Independent variables are equity issuance value and other sources of funds, normalized by total assets, in addition to the log of total assets. Total assets are taken at the value of the year just before the issuance. Dollar changes capture the change in the dependent variable resulting from a one-dollar increase in a firm's equity issuance. All variables are winsorized at the 1% level. All regressions include country and year fixed effects. Standard errors are clustered at the industry (two-digit SIC) level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2012.

	t	N	Log ($\frac{\text{Issuance}}{\text{Assets}_0} + 1$)		\$ Change	R ²
			$\beta 1$	t-stat		
Σ Capex	1	2,569	0.1499 **	2.151	0.1462	0.181
	2	2,820	0.2956 ***	3.981	0.3006	0.260
	3	2,486	0.2901 ***	3.316	0.3108	0.335
	4	2,102	0.2597 ***	2.739	0.2959	0.370
Σ Acquisitions	1	2,417	0.1483 ***	2.823	0.1347	0.184
	2	2,636	0.1648 **	2.136	0.1460	0.142
	3	2,309	0.2617 **	2.632	0.2278	0.203
	4	1,897	0.3776 ***	3.859	0.3208	0.229
Σ R&D	1	958	0.0785	1.654	0.0695	0.316
	2	1,001	0.1804 ***	3.579	0.1508	0.404
	3	825	0.1689 ***	3.382	0.1365	0.411
	4	651	0.2587 **	2.651	0.2058	0.402
Δ Inventory	1	2,151	0.1090 ***	2.661	0.0979	0.140
	2	2,423	0.2013 ***	2.695	0.1765	0.172
	3	2,127	0.1607 *	1.705	0.1356	0.149
	4	1,780	0.1091	1.131	0.0942	0.157
Δ Cash	1	2,208	0.3079 ***	3.903	0.2800	0.257
	2	2,490	0.3842 ***	4.523	0.3373	0.272
	3	2,193	0.4033 ***	4.619	0.3440	0.289
	4	1,846	0.3471 ***	3.949	0.2984	0.297
Σ LT Debt Reduction	1	2,556	0.5148 ***	3.670	0.4875	0.564
	2	2,857	0.3450 ***	3.296	0.3332	0.493
	3	2,529	0.3918 ***	4.233	0.3757	0.494
	4	2,118	0.3429 ***	3.350	0.3536	0.453

Appendix Figure 1: Global Equity Issuances and Equity Capital Inflows, Scaled by Country GDP

This figure plots the average value of equity issued by firms in emerging markets over GDP (right axis) against average value of portfolio equity inflows to emerging markets over GDP (left axis). Both equity issuances and inflows are scaled by country GDP, then the average ratios are computed across countries. The time-series is reported for the period 1990-2014.



Appendix Table 1: Capital Inflows and Equity Issuance Activity: Aggregate Evidence (Excluding Financial Firms)

This table presents country-level panel OLS regressions of the log of one plus aggregate equity issuance on the log of portfolio equity inflows. Columns (1), (4), and (5) report the analysis for all equity issuances. Columns (2) and (3) report the analysis only for domestic and foreign equity issuances, respectively. Issuance and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. All regressions include country and year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014. Only issuances by non-financial firms are considered.

	<u>Log(1+All Equity Issuance)</u>	<u>Log(1+Domestic Equity Issuance)</u>	<u>Log(1+Foreign Equity Issuance)</u>	<u>Dummy=1 if All Equity Issuance > 0</u>	<u>Log(All Equity Issuance)</u>
	(1)	(2)	(3)	(4)	(5)
Log(Equity Inflows)	0.5227 *** (0.096)	0.5390 *** (0.104)	0.3608 *** (0.083)	0.0331 *** (0.011)	0.4035 *** (0.069)
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Number of Observations	403	402	396	403	350

Appendix Table 2: Capital Inflows and Firms' Equity Issuance Activity (Excluding Financial Firms)

This table presents firm-level panel OLS regressions of the log of one plus equity issuance value on the log of portfolio equity inflows and their interaction with the large-equity-issuer dummy. Large-equity-issuer dummy is a variable equal to one if the time-average issuance value of a firm's domestic equity is greater than or equal to the median of all firms' average issuances, within a country-sector. Column (1) reports the analysis for all equity issuances. Columns (2), (4), and (5) report the analysis only for domestic equity issuances. Column (3) reports the analysis only for foreign equity issuances. Issuance and inflows values are in millions of constant 2011 US dollars. All variables are winsorized at the 1% level. Regressions in columns (1)-(4) include firm and year fixed effects, while column (5) includes firm and country-year fixed effects. Standard errors are clustered at the country and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The regressions are for emerging markets over the period 1990-2014. Only issuances by non-financial firms are considered.

	Log(1+All Equity Issuance)	Log(1+Domestic Equity Issuance)	Log(1+Foreign Equity Issuance)	Log(1+Domestic Equity Issuance)	
	(1)	(2)	(3)	(4)	(5)
Log(Equity Inflows)	0.0126 (0.019)	0.0115 (0.019)	0.0725 *** (0.019)	-0.0174 (0.020)	
Log(Equity Inflows)*Large Equity Issuer				0.0903 *** (0.030)	0.0732 ** (0.028)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	No
Country-Year FE	No	No	No	No	Yes
Number of Observations	102,912	94,751	13,778	94,751	94,751