

On the Determinants of Surges and Stops in Foreign Loans: An Empirical Investigation

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Abstract

This paper examines the determinants of surge and stop episodes in foreign loans using quarterly data from 55 countries covering 1990Q1 to 2011Q4. The estimation results show that, first, global, contagion and domestic factors are all significantly associated with both loan-led surge and stop episodes. Second, domestic factors are more relevant to stops than to surges and are associated more strongly with episodes in emerging countries than with those in advanced countries. Third, global risk and domestic growth shock are most consistent and important in predicting both types of episodes. Fourth, financial linkage is the most important contagion channel in the occurrence of loan-led episodes. Fifth, capital control is not a useful tool for avoiding either type of episode and may actually increase their likelihood. Finally, stops in emerging countries are strongly related to macroeconomic fundamentals such as inflation, current account balance, net foreign assets, real exchange rate, and previous occurrence of surge episodes. Our results strongly suggest that emerging countries with lower institutional quality levels are more likely to experience both surges and stops.

Keywords: Surge, Stop, Foreign loan, Global factor, Domestic factor, Contagion, Institutional quality
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1. Introduction

Over the past few decades, cross-border capital flows have become more volatile as financial integration has deepened, culminating in the Global Financial Crisis of 2008 and 2009. Episodes of extreme capital flows became frequent and often led to weaker macroeconomic fundamentals, a more fragile financial system, and even economic crises, especially in emerging economies.

A considerable body of literature has examined not only the causes and consequences of and policy responses to extreme capital flow episodes but also ways of identifying and measuring them. Extreme capital flow episodes are usually classified into “sudden stop” (Calvo, 1998; Calvo et al., 2004; Calvo et al., 2008) and “surge,” or “bonanza,” (Reinhart and Reinhart, 2009; Cardarelli et al., 2009). A sudden stop (surge) is a sharp cut-off (increase) in net capital flows (i.e., the net of gross inflows and gross outflows).

However, recent studies have tended to place more weight on gross capital flows than on net flows (Milesi-Ferretti and Tille, 2011; Forbes and Warnock, 2012a, b; Broner et al., 2013). Forbes and Warnock (2012a) find that the size and volatility of gross flows have increased while net flows have been more stable in the recent data; they emphasize the importance of distinguishing between gross inflows and gross outflows. They also argue that capital flow episodes may not be correctly measured by proxies for net capital inflows since changes in foreign and domestic investors’ behaviors intermingle. Thus, they differentiate between capital movements initiated by foreign investors (gross capital inflows) and those initiated by domestic investors (gross capital outflows) and identify four types of episodes: surge and stop (gross inflows) and flight and retrenchment (gross outflows).

Forbes and Warnock (2012a) may be the first to build a database of all types of episodes initiated by domestic and foreign investors and empirically investigate the determinants of each episode. They use quarterly data on 58 countries covering 1980 to 2009 and identify the four types of extreme movement in aggregate capital flows. Their key empirical result is that extreme capital flow episodes are primarily associated with global “push” factors rather than with domestic “pull” factors.

This paper empirically investigates the factors associated with loan-led episodes initiated by foreigners relying on a quarterly dataset comprising 55 countries and covering 1990 to 2011. We closely follow Forbes and Warnock (2012a, b) in identifying capital flow

episodes, the country sample, baseline explanatory variables, and the estimation strategy. This study differs from Forbes and Warnock (2012a, b) in, first, focusing on episodes in one type of capital flow, loans; most studies, including Forbes and Warnock (2012a, b), have explored extreme episodes in aggregate capital flows.¹ Loan flow has long been an important source of foreign funding and is known to be the most volatile type of capital flow (IMF, 2011). Thus, focusing on extreme loan episodes is worthwhile. Second, we also focus on surge and stop episodes initiated by foreign investors, restricting the implications of our results to foreign loans. Third, while Forbes and Warnock (2012a, b) lack country groupings, we categorize our sample into two groups: advanced and emerging countries. Finally, our sample period is extended to the fourth quarter of 2011.

Our empirical results show that both loan-led surge and stop episodes are significantly associated not only with global and contagion factors but also with domestic factors, unlike the findings in Forbes and Warnock (2012a, b). Our study also indicates that different factors are important in predicting the probability of surge and stop episodes. Some important factors are shared, but others are unique to each episode.² For stop episodes in emerging countries, institutional quality and domestic economic fundamentals are highly relevant. Contagion effects in the occurrence of loan-led surges and stops are also important. However, we fail to find evidence that capital control is a useful tool for containing extreme flows of foreign loans.

The remainder of this paper is organized as follows. Section 2 presents the methodology for identifying loan-led surge and stop episodes. Section 3 describes our control variables and empirical specification, and section 4 discusses our estimation results. The final section summarizes our main findings and policy implications.

2. Identifying surge and stop episodes in loans

We follow Forbes and Warnock (2012a, b) in identifying surge and stop episodes in loans

¹ Forbes and Warnock (2012a) use total capital flows, which comprise the sum of FDI, portfolio, and other investments, while Forbes and Warnock (2012b) divide these into two types of flows: one is the sum of FDI and portfolio equity, and the other is the sum of portfolio bonds and other investments.

² According to our empirical results, for example, global risk is important for both surge and stop episodes, but global liquidity is related only to surges, while global interest rates are related only to stops.

initiated by foreigners. We define loan-led “surges” as a sharp increase in gross loan inflows and loan-led “stops” as a sharp decrease in gross loan inflows. We identify surge and stop episodes using the formula below:

$$F_t = \sum_{i=0}^3 LINFLOW_{t-i}, \quad t = 1, 2, 3, \dots, T \quad (1)$$

$$DF_t = F_t - F_{t-4}, \quad t = 5, 6, 7, \dots, T \quad (2)$$

where $LINFLOW_t$ denotes quarterly gross inflow of loans in quarter t . F_t indicates the 4-quarter moving sum of gross loan inflows, and DF_t is the annual year-on-year change in F_t . Let m_t and s_t be rolling mean and standard deviation of DF_t over the last five years, respectively. Then, a surge episode is defined for the period between u and v if DF_t starts to exceed $m_t + s_t$ at u and falls below $m_t + s_t$ at $v+1$. Moreover, between starting ($t=u$) and ending ($t=v$) quarters of a surge episode, there must be at least one quarter when DF_t exceeds $m_t + 2s_t$. A stop episode is defined, similarly, for the period between u and v if DF_t starts to fall below $m_t + s_t$ at u and rises above $m_t - s_t$ at $v+1$. Likewise, a stop period must contain at least one quarter when DF_t drops below $m_t - 2s_t$.

Gross loan inflows are measured as loan liabilities in “other investments” in the International Monetary Fund’s *Balance of Payments*.³ Our data set is constructed such that the computation of equation (2) begins with the first quarter of 1990 and ends in the fourth quarter of 2011. The sample period varies depending on the country due to differences in the availability of data on loan liabilities. The full sample is divided into 2 country groups—22 advanced and 33 emerging countries. The countries are selected on the basis of the dataset in Forbes and Warnock (2012a).⁴

Table 1 reports the summary statistics for the loan-led episodes identified in this paper, showing that 180 and 163 surge and stop episodes (respectively) occurred during the sample period. The average length is 4.0 quarters for surges and 3.8 quarters for stops; surges thus lasted a little longer than stops, on average, and both lasted longer in emerging countries than in advanced countries. Note that regional disparities are greater among surges than

³ It should be noted that “gross inflows” are also net items. Gross loan inflows stand for the net borrowing of residents from non-resident lenders, which comprises borrowing by the public as well as the private sectors. In other words, gross inflows refers to the amount of non-residents’ net claims on residents.

⁴ See Table A1 for the country list.

among stops. The average length of surges was longest in Eastern Europe (with 4.8 quarters) and the shortest in North America (with 3.0 quarters), while stops were longest in North America (with 4.3 quarters) and shortest in Western Europe (with 3.6 quarters). Our computation also reveals that surge and stop episodes account for 15 and 18 percent (respectively) of the total number of quarters used in regressions.

3. Data and estimation model

3.1 Data and control variables

The literature on sudden stops and surges as well as on capital flows in general has explored whether the determinants of capital flows are global “push” factors external to the country or domestic “pull” factors (e.g., Calvo et al., 1993, 1996; Fernandez-Arias, 1996; Fernandez-Arias and Montiel, 1996; Taylor and Sarno, 1997; Chuhan et al., 1998; Griffin et al., 2004). Recent studies on extreme capital flow episodes have also selected explanatory variables based on this traditional approach (Forbes and Warnock, 2012a, b; Gosh et al., 2012). The variables used in Forbes and Warnock (2012a, b) include both contagion variables and global and domestic factors. The variables employed in estimating our baseline equation are similar to those in Forbes and Warnock (2012a, b), but some of those are measured differently, added, or dropped.

Global factors

We use four variables as global factors: global risk, liquidity, interest rates, and growth. Global risk encompasses both risk aversion and economic uncertainty. We expect that higher global risk is associated with fewer surges and more stops—similarly for higher global interest rates. On the other hand, an increase in global liquidity or global growth is likely to be associated with more surges and fewer stops.⁵

Contagion

Another push factor, one that has received much attention recently, is contagion.⁶ Apart from

⁵ See Table A2 for data descriptions and sources.

⁶ See Glick and Rose (1999), Forbes (2002), Aboysinghe and Forbes (2005) for contagion through trade

other factors, contagion itself may cause a sharp increase or decrease in loan inflows. A surge (stop) in one country may increase the likelihood of a surge (stop) in another if they are geographically close or if their economies are strongly linked through financial transactions or international trade. For estimation, we use three contagion variables—regional dummy, trade linkage, and financial linkage.

To estimate the contagion effects through geographical linkage, we use a regional dummy variable taking a value of 1 when at least one of the countries in the same region experiences an episode and 0 otherwise. Our regional classifications are presented in Table 1. Following the methodology in Forbes and Warnock (2012a), we construct a measure of contagion through the trade channel in country i at time t (TC_t^i) as follows:

$$TC_t^i = \frac{\sum_j^n (EX_{j,t}^i \times Edummy_{j,t})}{\sum_j^n EX_{j,t}^i} \times \frac{EX_t^i}{GDP_t^i}, \quad j \neq i \quad (3)$$

In equation (3), $EX_{j,t}^i$ is exports from country i to country j , and EX_t^i is country i 's total exports to the world. EX_t^i/GDP_t^i is a measure of country i 's trade openness. $Edummy_{j,t}$ is a dummy variable set to 1 if an episode is detected in country j at time t and 0 otherwise. TC_t^i is computed for each surge and stop episode in country i . TC_t^i has a higher value as country i 's trade openness is higher or as countries experiencing an episode in quarter t trade more with country j . If no other countries experience an episode, this variable becomes 0.

Similarly, we construct a measure of country i 's contagion through the financial channel (FC_t^i) as follows:

$$FC_t^i = \frac{\sum_j^n (CLAIM_{j,t}^i \times Edummy_{j,t})}{\sum_j^n CLAIM_{j,t}^i} \times \frac{CLAIM_t^i}{GDP_t^i}, \quad j \neq i \quad (4)$$

To calculate this variable, we use quarterly data on banks' foreign claims provided by the Bank for International Settlement. $CLAIM_{j,t}^i$ is the amount of foreign claims by banks in country j on country i , whereas $CLAIM_t^i$ is the total amount of foreign claims on country i

channels, and Peek and Rosengreen (1997) and Broner et al. (2006) for contagion through financial channels.

provided by the banks in the rest of the world. $Edummy_{j,t}$ is, again, the episode dummy variable as defined above. The value of FC_t^i will be higher to the extent that country i is financially more open or countries experiencing an episode have relatively larger foreign claims on country i .

Domestic factors

We use four variables to account for domestic factors: financial market development, financial openness, country indebtedness, and domestic growth shock. First, recent studies on capital flows suggest that countries with more developed financial markets attract more foreign capital. The theoretical work of Caballero et al. (2008) and Mendoza et al. (2009) shows that global imbalances can occur when countries with deeper financial markets accumulate a large stock of net foreign liabilities given that nations' financial markets are integrated. Forbes (2010) supports this argument by empirically showing that foreigners invest in the U.S. because it has advanced financial markets. We thus expect that financial development is associated positively with surges and negatively with stops.

However, the opposite result may occur for the case of stop episodes because foreign investors have more opportunities to pull back their claims on domestic assets the deeper the countries' financial markets are. Forbes and Warnock (2012a) also find that countries with deeper financial markets are more likely to experience stops. Thus, the relationship between financial market depth and the probability of stops remains an empirical question. To measure financial market development, we use the ratio of stock market capitalization to GDP ($M_capitalization$). Another measure, domestic credit to the private sector as a share of GDP ($Private\ credit$), is also used for a robustness check.

Second, higher financial openness may cause surges in capital inflows and raise the risk of a sudden stop even in the absence of domestic problems (Stiglitz, 2002; Kaminsky, 2008). Calvo et al. (2008) assert that the probability of sudden stops initially increases with financial integration before eventually decreasing. These studies all implicitly suggest that capital control is a useful tool for reducing surges in capital inflows. However, some empirical studies (e.g., Forbes and Warnock, 2012a, b) find no significant relationship between capital control and extreme capital flows; this relationship needs to be further explored. As a measure of financial openness, we use Chinn and Ito's (2008) capital account openness index ($Chinn_Ito$). We also use a globalization index ($Globalization$) drawn from

Dreher et al. (2008) and the sum of foreign assets and liabilities divided by GDP (*Fal*) as in Lane and Milesi-Ferretti (2007) for robustness checks.⁷ A higher value in these indicators implies greater financial openness.

The third variable is country indebtedness, an important indicator of macroeconomic soundness. We expect that countries with higher debt are likely to experience more stops and fewer surges in loan inflows. Country indebtedness is measured as the ratio of government debt to GDP (*Public debt*).

The last variable is domestic growth shock (*Growth shock*). Capital flows are known to be pro-cyclical (Kaminsky et al., 2005; Sula and Willet, 2009; Contessi et al., 2013; Broner et al., 2013). Capital inflows increase during expansions and contract during recessions. We thus expect that growth shocks related to business cycles are associated positively with the likelihood of surges and negatively with that of stops in loan inflows. We measure domestic growth shock as the deviation in the country's actual growth from the growth trend. We construct the growth trend using the Hodrick–Prescott (HP) filter.

3.2 An empirical specification

To examine how global, contagion, and domestic factors affect the probability of loan-led surge and stop episodes, we estimate the following complementary log-log regression model:

$$Pr(E_t^i = 1) = F(G_{t-1}^i\beta + C_{t-1}^i\gamma + D_{t-1}^i\delta),$$

$$\text{where } F(z) = 1 - \exp\{-\exp(z)\} \quad (5)$$

In equation (5), E_t^i is an episode dummy variable taking the value 1 if country i experiences a surge or stop episode in quarter t and 0 otherwise. G_{t-1}^i , C_{t-1}^i , and D_{t-1}^i denote the vectors of global, contagion, and domestic variables, respectively. Note that these explanatory variables are lagged by one quarter to avoid the possible endogeneity problem. $F(z)$ denotes a cumulative distribution function. The complementary log-log regression assumes an asymmetry of the cumulative distribution function, unlike in other binary-dependent variable

⁷ The updated indexes of Chinn and Ito (2008) and Lane and Milesi-Ferretti (2007) are available at http://web.pdx.edu/~ito/Chinn-Ito_website.htm and <http://www.philiplane.org/EWN.html>, respectively.

models such as logit and probit analyses. The complementary logarithmic framework can be properly used when the values of the binary-dependent variable are extremely unbalanced, as in our sample.

4. Estimation results

4.1 The baseline results

The estimation results of equation (5) for surge and stop episodes are shown in Tables 2 and 3, respectively. Columns (1)-(4) in these tables present the results for the full dataset, based on the baseline control variables discussed in section 3.1. The results indicate that both pull (global and contagion) and push (domestic) factors matter for both surges and stops. These results provide several main empirical findings. First, global risk and domestic growth shock are significantly associated with both surge and stop episodes. As expected, global risk is negatively related to the probability of surges but positively related to that of stops, revealing investors' risk aversion in dealing with cross-border loans. On the other hand, countries with larger domestic growth shocks are likely to experience more surges but fewer stops, confirming the pro-cyclical nature of foreign loan inflows.

Second, our results show that global liquidity is relevant only to surge episodes while the global interest rate is relevant only to stop episodes. We find no significant role of global growth. Global liquidity and interest rate have positive coefficients: the likelihood of surge (stop) episodes rises along with greater global liquidity (interest rates). Contrary to Forbes and Warnock (2012a), our finding supports the argument that the stimulative quantitative easing (QE) policies introduced by the major advanced countries since 2008 caused large increases in capital inflows to other countries after the Global Financial Crisis (e.g., Fratzcher, 2012; Fratzcher et al., 2013). Our results are also helpful in predicting the effects of the U.S. Federal Reserve's policy of tapering its QE, decided in December 2013: the reduction in global liquidity caused by the tapering QE policy is unlikely to set off large outflows of foreign capital, or at least foreign loans, from other countries as long as the U.S. interest rate does not increase.

Third, our empirical results strongly suggest that contagion effects play a significant role in both surge and stop episodes. However, not all of the three contagion channels are

important for each episode. In the full dataset, surge is related only to contagion through geographical proximity and stop is relevant only to contagion through financial linkage; as discussed later, we can observe additional effective channels of contagion effects when we divide the sample into advanced and emerging countries. Fourth, the results imply that countries with higher debt are less likely to experience surges, implying that weaker economic fundamentals related to national indebtedness raise the likelihood of stop episodes. Moreover, countries with greater financial depth are more vulnerable to stop episodes, while financial deepening does not affect the probability of surge episodes. The degree of financial markets' ability to provide liquidity seems to matter during large capital outflows. Finally, we see that financial openness has no significant relationship with any type of episode, suggesting that capital control is not a useful tool for reducing extreme capital flow episodes related to foreign loans.

Thus, the full sample's results indicate that countries are more likely to have surge episodes as global risk is lower, global liquidity is larger, public debt is smaller, or the economy is in greater expansion. Stop episodes are related positively to global risk, interest rates, and financial deepening but negatively to domestic growth shock. The regional linkage channel of contagion effects exists only in surge episodes, and the financial channel exists only in stop episodes.

Tables 2 and 3 also show the results for the sample of advanced (columns 5 to 8) and emerging (columns 9 to 12) countries. Regarding surge episodes (see Table 2), we find that the results for the two country groups differ entirely. None of the control variables is significant for advanced countries, while the results for emerging countries are similar to those for the full sample, with one exception: financial linkage becomes another significant factor.⁸ This implies that contagion effects through both regional and financial linkages are important in surges in emerging countries. The contagion variable for trade linkage enters with significant but negative coefficients, thus suggesting no evidence of contagion effects through this channel.⁹

⁸ The globalization index, a financial openness measure, has a negative and significant coefficient. It is difficult to assert, however, that emerging countries, which are financially more open, may be less likely to experience surges in loan inflows since the other measures do not show statistical significance.

⁹ The negative coefficient of this variable implies that surges are less likely to occur in countries that trade more heavily with economies that experience the same type of episodes. However, it is hard to find an appropriate economic rationale for this outcome. Thus, we interpret the negative coefficient as indicating that contagion

Unlike with surges, all three (global, contagion, and domestic) factors are associated with stop episodes in advanced countries. Moreover, the results for advanced and emerging countries are similar; as shown in Table 3, all variables statistically significant in the regressions of the full sample are still important. However, the regressions with country grouping also produce new findings peculiar to each group. One is in the validity of the contagion channels: in addition to the financial channel, the regional linkage channel also matters for stops in emerging countries, and the trade channel is relevant to stops in advanced countries. We find no evidence of the trade channel mattering in emerging countries or the regional linkage channel mattering in advanced countries. Combining the earlier results, we see that, in emerging countries, contagion effects through regional linkage and financial channels are important for both stop and surge episodes. In advanced countries, trade and financial channels are important for stops. Thus, the financial channel plays a significant role in both groups of countries.

Another finding concerning stop episodes is that both public debt and financial openness show statistical significances in the regressions of advanced countries, but do not in those of emerging countries. However, these two domestic factors enter with unexpected coefficient signs in the regressions of advanced countries: countries with higher public debt or that are financially more open will have less probability of experiencing stops. The first result may occur because many richer countries carry heavy public debt. Meanwhile, the negative coefficient of financial openness indicates that capital control may raise the likelihood of stop episodes. However, our result is supported by the findings in Calvo et al. (2008) that the probability of sudden stops increases along with the early stages of financial integration but decreases after a critical point; they further argue that this happens in advanced countries that are extensively globally integrated.

4.2 Additional control variables

We now extend our baseline model to investigate whether other domestic variables may be significantly associated with surges and stops in loan inflows. The literature proposes several country-specific variables relevant to capital flows and crises. One is exchange rate regime

through the trade channel does not play a role in explaining the probability of surge episodes. The same interpretation will apply to the contagion variables with negative signs shown in the other tables.

(*Regime*). The implicit guarantee of a fixed exchange rate may encourage cross-border capital flows (Ghosh et al., 2012). The frequency of credit booms is much greater in countries with fixed or managed exchange rate regimes given that credit booms in emerging countries tend to be preceded by large capital inflows (Mendoza and Terrones, 2008). Thus, we expect that surges are positively correlated with more rigid exchange rate regimes. We use the updated dataset of the *de facto* exchange rate regime in Reinhart and Rogoff (2004). We construct four regime dummies (*Regime i*, $i = 1-4$) based on their coarse classification codes: *Regime1* takes the value 1 if the exchange rate regime is classified as code 1 (fixed or peg) and 0 otherwise. Similarly, *Regime2* and *Regime3* are defined as the dummy variables for code 2 (soft peg)¹⁰ and code 3 (managed floating), respectively. *Regime4* is a dummy for code 4 (freely floating), which is used as a reference regime.

Next, we introduce macroeconomic variables often used in the literature on sudden stops: current account deficits (*CA*; Edwards, 2004; Agosin and Huaita, 2011), foreign reserves (*Reserve*; Edwards, 2004), and real exchange rate fluctuations, or overvaluations (*REX*; Calvo et al., 2008). *CA* is measured as the cumulative current account balance over the preceding 12 quarters. We also use net foreign assets (*NFA*), from the updated database in Lane and Milesi-Ferretti (2007), as another variable for international imbalances. *CA*, *Reserve*, and *NFA* are measured as a share of GDP. *REX* is defined as the cumulative deviations from the long-run trend of the real exchange rate over the preceding 12 quarters, where positive (negative) values indicate the undervaluation (overvaluation) of the real exchange rate.

Another relevant variable is the inflation rate (*Inflation*). High inflation degrades economic fundamentals, thus discouraging capital inflows. Moreover, inflation initiated by credit booms with large capital inflows will be accompanied by real appreciation and widening external deficits and followed by sudden reversals of capital flows (Edwards, 2004; Mendoza and Terrones, 2008; Claessens and Kose, 2013). Thus, a higher inflation rate may raise the probability of both surges and stops. Inflation is measured as a percentage change in the consumer price index.

Finally, we consider country risk (Chuhan et al., 1998) and institutions (Fratzscher, 2012; Fratzscher et al., 2013; Gosh et al., 2012). Countries with better institutions and lower

¹⁰ Code 2 comprises the crawling peg and crawling band, which we call “soft peg.”

risk are more likely to draw large capital inflows and less likely to experience sharp capital flow reversals. The proxy for country risk is the sovereign rating of a particular country (*Credit*), measured as its credit rating as reported by Standard and Poor's. We number off credit ratings such that *Credit* range from 1 to 20, from worse to better. We use two measures for institutional quality (*Quality*): the composite index of World Governance Indicators (*Quality_WGI*) of the World Bank and the political risk index in the International Country Risk Guide (*Quality_ICRG*) published by the PRS Group. Higher values indicate better institutional quality.

We add these nine domestic variables one by one to the baseline equation. All variables are one-quarter lagged. The estimation results for surge and stop episodes in loan inflows are shown in Tables 4 to 6 and 7 to 9, respectively. There are three tables for each episode, presenting the results for the full sample, advanced countries, and emerging countries. We find that, after adding each new control variable, the signs and significances remain intact for most explanatory variables in the baseline regressions.

For surge episodes, only a few of the newly added domestic variables are statistically significant. Inflation is the only one that is significant for the full sample (see Table 4). When the sample is divided into the two country groups, inflation is relevant to surge episodes in advanced countries but not those in emerging countries (see Tables 5 and 6). The positive sign implies that advanced countries with higher inflation are more likely to experience surge episodes, a result consistent with Reinhart and Reinhart (2009) whose sample of 16 advanced countries showed that CPI inflation increased until surges in capital inflows occurred. Table 5 shows that credit rating enters with a significant and negative coefficient, indicating that advanced economies with higher credit ratings are less likely to experience drastic increases in loan inflows.

By contrast, exchange rate regime and institutional quality show statistical significances in the dataset of emerging countries. As Table 6 shows, all three exchange rate dummy variables have positive coefficients, but only *Regime2* is statistically significant and has the highest coefficient of 0.53. This result implies that emerging countries with an intermediate (soft peg) regime are more likely to have surge episodes than are those with freely floating regimes, as suggested by Mendoza and Terrones (2008). Meanwhile, we find no difference between freely floating and fixed or managed floating regimes in determining the probability of surges. Using the *de facto* exchange rate regimes (taken from the IMF's

AREAER), Gosh et al. (2012) also found similar empirical results: the likelihood of capital inflow surges was found to be lower for emerging countries with more flexible regimes.

Regarding institutional quality, both measures have negative and significant coefficients, suggesting that emerging countries with better institutional quality are less likely to experience surges in loan flows. However, Gosh et al. (2012) find the opposite result—that countries with stronger institutions will have more surges. They use the average of the political risk components from ICRG to measure institutional quality. Such contradictory results may come from differences in the methodology used to identify surge episodes, in the dataset, or in estimation methods employed. Countries with better institutions have better investment environments, leading to larger inflows of foreign capital. However, though this argument may apply to *normal* capital inflows, it may not apply to *excessive* capital inflows. Fratzscher et al. (2013) examine the international spillovers of U.S. QE policies and find that the U.S. Federal Reserve's QE measures raised outflows even further in periods when capital fled emerging countries and magnified inflows when they were already large; moreover, the spillover effects were relatively small for countries with strong institutions. Their findings support ours.

Unlike with surges, many other domestic variables are significantly associated with stop episodes in loan inflows, as shown in Tables 7 to 9. We find that, first, inflation enters with positive and significant coefficients for all groups of countries, indicating that countries with higher inflation rates are more likely to experience stop episodes; interestingly, advanced countries with higher inflation rates are more likely to have both surges and stops. Second, in advanced countries, inflation is the only variable that shows statistical significance, whereas most of the newly added variables are relevant to stop episodes in emerging countries. Third, stop episodes are more likely to occur in emerging countries with larger current account deficits, larger net foreign liabilities, or more overvalued real exchange rates, which is consistent with the findings of previous studies. The coefficient of reserves is negative and significant for the full sample but loses statistical significance in the subsamples; thus, we cautiously conclude that countries with larger reserve holdings are more likely to avoid stop episodes. Fourth, both measures of institutional quality have negative and significant coefficients only for emerging countries. Combining the results in Tables 6 and 9, we can say that emerging countries with lower institutional quality levels are more likely to experience both surge and stop episodes, as implicitly shown in Fratzscher (2012) and

Fratzscher et al. (2013). On the other hand, institutional quality is not associated with either type of episode in advanced countries, perhaps because these countries are all at similar levels of economic and institutional development.

Finally, we use one more variable, a surge dummy, only for regressions of stop episodes. Many studies have found that a surge in capital flows significantly increases the probability of a sudden stop.¹¹ To test this hypothesis, we construct a surge dummy variable (*Surge*) taking the value 1 if at least one surge episode is observed over the previous four quarters before a stop episode occurs and 0 otherwise. The results show that past occurrences of surge episodes raise the likelihood of a stop in the emerging country sample. However, a significant relationship is not found in the advanced country sample.

4.3 Institutional quality

One of our main findings is that institutional quality is significantly associated with the probability of both surge and stop episodes in loan inflows, especially for emerging countries. Institutional quality was measured by two composite indexes—WGI and political risk in ICRG—which comprise the sum of six and eight individual components, respectively.¹² There is no guarantee, however, that the results based on the composite index are equivalent to those of the individual components in terms of statistical significance or coefficient signs. Thus, using the components of the two composite indexes, we re-estimate equation (5) for the emerging country dataset.

Tables 10 and 11 present the results for surge and stop episodes, respectively. We observe that none of the baseline outcomes significantly change even after a new variable is added. For the WGI data, all six components are significantly and negatively related to the probability of both surges and stops. These results imply that both episodes are associated with (i) political freedom and stability (i.e., voice and accountability, political stability and absence of violence/terrorism), (ii) government's capacity to implement sound policies (i.e.,

¹¹ See Sula (2010), Agosin (2012), and Furceri et al. (2012).

¹² The political risk index in ICRG comprises twelve components. This paper uses the eight we believe are most relevant to capital flows. We also create a new variable, "conflict," by combining external and internal conflict, thus producing seven components for the regressions. The components excluded from the composite index are military in politics, religious tensions, ethnic tensions, and democratic accountability. See the data descriptions in Table A2 and Kaufmann et al. (2010) and the *International Country Risk Guide* methodology for details on their definitions.

government effectiveness, regulatory quality), and (iii) citizen and state respect for the institutions that govern their economic and social interactions (i.e., rule of law, control of corruption). For the ICRG political risk data, four out of seven components (i.e., corruption, law-and-order, socioeconomic conditions, and external and internal conflict) are significantly associated with both surges and stops; these variables stand for social and institutional stability. Government stability also matters for stop episodes; specifically, corruption and rule-of-law, included in both WGI and ICRG, may be critical factors affecting foreign investors' decisions on domestic assets. Rule of law measures the extent to which agents have confidence in the quality of contract enforcement and property rights. Corruption could threaten foreign investment in various ways, such as by distorting a nation's economic and financial environment or causing an inherent instability in its political process. Therefore, upgrading their institutional quality may be a prerequisite of avoiding extreme loan inflow episodes for emerging countries.

5. Summary and concluding remarks

This paper empirically examines the determinants of loan-led surge and stop episodes initiated by foreigners. We use three groups of variables—global, contagion, and domestic factors—and divide our sample into advanced and emerging countries. We find that both episodes are significantly associated with not only global factors and contagion but domestic factors as well. Domestic factors are more relevant to stops than to surges and are associated more with episodes in emerging countries than with those in advanced countries.

We offer several main empirical findings on baseline regressions. First, global risk consistently predicts both types of episodes; global liquidity and global interest rates are positively related to the probability of surge and stop episodes, respectively. Second, regarding the role of contagion effects, financial linkage is the most important channel in the occurrence of both types of episode. Third, among domestic variables, domestic growth shocks play a consistent and important role in explaining the probability of both surge and stop episodes. Financial market deepening is positively associated with stops but is irrelevant to surges. Our empirical results also indicate that capital control is not an effective means of reducing extreme capital inflow episodes but may actually increase their likelihood. Finally, we find that the importance of control variables differs across the country groups. Global,

contagion, and domestic factors are all related to both surges and stops in emerging countries, but they matter only for stops in advanced countries.

We extend our baseline model by adding domestic variables often used in previous studies and obtain important results, particularly for emerging countries. Emerging countries with lower institutional quality levels are more likely to encounter both surge and stop episodes, an outcome that is robust to changes in measures. We also find that such countries are more likely to experience stops the higher their inflation rate, the larger their current account deficits and net foreign liabilities relative to GDP, and the greater the overvaluation of their real exchange rates. Past occurrences of surges also heighten the probability of a stop in emerging countries. These results strongly suggest that macroeconomic fundamentals are important in determining the likelihood of loan-led stop episodes in emerging countries. While some previous studies emphasize the importance of the exchange rate regime in determining capital flows, we find it to be important only in surge episodes, not in stop episodes.

This paper deals with surge and stop episodes in foreign loans, a narrowly defined capital flow. Our empirical findings suggest that policy makers should search for both global and domestic solutions for reducing capital flow volatility, especially in emerging countries. To that end, cross-border policy cooperation and a more active role of global institutions are needed. Our results also imply that emerging countries, in particular, should strengthen their economic fundamentals and institutions to avoid extreme capital flows. Emerging countries that have experienced surges in capital inflows should prepare to defend themselves from the stops that may soon occur. However, our empirical findings suggest that capital control is not a useful tool for reducing capital flow volatility.

This study focuses on loans episodes and the behavior of foreign investors. The determinants of loan outflows initiated by domestic investors should be investigated to examine whether the significant determinants found in this paper also apply to them. We also need to explore the determinants of extreme capital episodes in other types of capital flows, such as equity, bond, and FDI. The findings of such studies would provide valuable complements to the results of this paper.

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Table 1. Summary Statistics for Surge and Stop Episodes in Foreign Loans

Length (in quarters)	Surge					Stop				
	2-4	5-8	9 & over	Episodes Total	Average Length	2-4	5-8	9 & over	Episodes Total	Average Length
All Countries	142	34	4	180	4.0	121	33	2	163	3.8
Advanced	64	16	1	81	3.7	56	12	1	69	3.7
Emerging	78	18	3	99	4.2	65	21	1	87	3.9
By Region										
Western Europe	55	15	1	71	3.8	49	9	1	59	3.6
Eastern Europe	20	9	2	31	4.8	16	8	0	24	4.1
North America	3	0	0	3	3.0	3	1	0	4	4.3
South America	25	6	0	38	3.9	22	6	0	35	3.8
Asia-Pacific	35	4	1	40	3.7	26	8	1	35	4.0
Others	4	0	0	4	3.5	5	1	0	6	3.5

Note: (1) Figures in the table indicate the frequency of surge or stop. (2) Sample period: 1990Q1-2011Q4

Table 2. Determinants of Surges in Foreign Loans

	All (1)	All (2)	All (3)	All (4)	Advanced (5)	Advanced (6)	Advanced (7)	Advanced (8)	Emerging (9)	Emerging (10)	Emerging (11)	Emerging (12)
Global Factors												
V IX	-0.029** (-2.10)	-0.030** (-2.15)	-0.029** (-2.04)	-0.029** (-2.06)	-0.029 (-1.40)	-0.030 (-1.45)	-0.030 (-1.42)	-0.026 (-1.02)	-0.033* (-1.76)	-0.034* (-1.86)	-0.031* (-1.65)	-0.033* (-1.72)
Liquidity	0.027 (1.61)	0.030* (1.82)	0.028* (1.67)	0.030* (1.82)	-0.031 (-1.20)	-0.027 (-1.05)	-0.034 (-1.24)	-0.030 (-1.13)	0.057*** (2.77)	0.057*** (2.80)	0.057*** (2.74)	0.055*** (2.65)
Interest rate	-0.037 (-0.58)	-0.047 (-0.73)	-0.043 (-0.67)	-0.047 (-0.73)	-0.194 (-1.55)	-0.125 (-0.77)	-0.189 (-1.49)	-0.290 (-1.55)	0.004 (0.05)	-0.012 (-0.17)	0.001 (0.01)	0.006 (0.08)
Growth	0.042 (0.84)	0.035 (0.72)	0.040 (0.81)	0.031 (0.61)	0.021 (0.25)	-0.008 (-0.10)	0.026 (0.31)	-0.033 (-0.37)	0.062 (0.94)	0.056 (0.87)	0.060 (0.90)	0.061 (0.93)
Contagion												
Regional linkage	0.532** (2.44)	0.536** (2.41)	0.556** (2.51)	0.566** (2.54)	0.276 (0.63)	0.267 (0.61)	0.254 (0.58)	0.354 (0.86)	0.573** (2.34)	0.564** (2.24)	0.615** (2.38)	0.520** (0.313)
Trade linkage	-0.325 (-1.19)	-0.341 (-1.24)	-0.330 (-1.21)	-0.496** (-1.97)	0.670 (0.80)	0.818 (0.84)	0.688 (0.77)	0.773 (1.05)	-0.724*** (-3.07)	-0.686*** (-2.79)	-0.714*** (-2.86)	-0.830*** (-3.40)
Financial linkage	0.130 (1.03)	0.136 (1.04)	0.156 (1.14)	0.188 (1.51)	-0.159 (-1.44)	-0.166 (-1.38)	-0.203 (-1.42)	-0.048 (-0.31)	0.266* (1.91)	0.272* (1.82)	0.300** (2.03)	0.260** (1.98)
Domestic Factors												
Financial depth												
M_capitalization	-0.098 (-0.97)		-0.047 (-0.43)	-0.061 (-0.60)	-0.184 (-0.63)		-0.211 (-0.71)	-0.067 (-0.26)	-0.106 (-0.89)		0.094 (0.57)	-0.100 (-0.83)
Private credit		-5.3 x 10 ⁻⁴ (-0.27)				0.002 (0.41)				-0.002 (-0.86)		
Financial openness												
Chinn_Ito	0.007 (0.13)	-0.005 (-0.09)			0.035 (0.29)	0.026 (0.19)			-0.021 (-0.32)	-0.036 (-0.55)		
Fal			-0.014 (-0.92)				0.011 (1.10)				-0.062 (-1.38)	
Globalization				-0.005 (-1.13)				-0.009 (-0.49)				-0.012* (-1.73)
Public debt	-0.006* (-1.88)	-0.006* (-1.82)	-0.005* (-1.82)	-0.006** (-2.01)	-0.003 (-1.86)	-0.002 (-0.60)	-0.002 (-0.76)	-0.004 (-0.90)	-0.011*** (-3.54)	-0.012*** (-3.64)	-0.010*** (-2.60)	-0.010*** (-4.03)
Growth shock	0.064*** (2.60)	0.062** (2.45)	0.065*** (2.61)	0.067*** (2.65)	0.088 (1.07)	0.095 (1.23)	0.085 (1.05)	0.146* (1.75)	0.055** (2.19)	0.052** (2.01)	0.057** (2.17)	0.056** (2.10)
Observations	2705	2684	2705	2502	1008	975	1008	854	1697	1709	1697	1648

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4

Table 3. Determinants of Stops in Foreign Loans

	All (1)	All (2)	All (3)	All (4)	Advanced (5)	Advanced (6)	Advanced (7)	Advanced (8)	Emerging (9)	Emerging (10)	Emerging (11)	Emerging (12)
Global Factors												
VIX	0.025*** (3.98)	0.025*** (3.77)	0.025*** (3.99)	0.026*** (4.04)	0.020* (1.89)	0.019* (1.65)	0.018* (1.71)	0.021** (2.09)	0.023** (2.53)	0.022** (2.53)	0.023** (2.71)	0.023*** (2.60)
Liquidity	0.009 (0.54)	0.008 (0.47)	0.009 (0.54)	0.007 (0.39)	0.033 (1.06)	0.017 (0.55)	0.035 (1.11)	0.017 (0.55)	-0.001 (-0.06)	0.005 (0.21)	0.002 (-0.08)	-0.001 (-0.02)
Interest rate	0.175*** (3.34)	0.164*** (3.28)	0.182*** (3.64)	0.164*** (3.22)	0.200*** (2.70)	0.175** (2.15)	0.183** (2.39)	0.058 (0.74)	0.155** (2.36)	0.150** (2.38)	0.167** (2.67)	0.171*** (2.88)
Growth	-0.035 (-0.83)	-0.032 (-0.79)	-0.035 (-0.83)	-0.028 (-0.65)	-0.050 (-0.74)	-0.042 (-0.59)	-0.031 (-0.46)	0.003 (0.04)	-0.045 (-0.81)	-0.042 (-0.81)	-0.045 (-0.83)	-0.049 (-0.87)
Contagion												
Regional linkage	0.135 (0.76)	0.182 (1.06)	0.128 (0.72)	0.106 (0.57)	-0.615** (-2.45)	-0.464* (-1.72)	-0.624** (-2.51)	-0.654*** (-3.05)	0.415* (1.93)	0.422* (1.86)	0.410* (1.89)	0.362* (1.65)
Trade linkage	-0.455 (-1.31)	-0.479 (-1.36)	-0.487 (-1.41)	-0.475 (-1.40)	1.099** (2.00)	1.186** (2.00)	1.052* (1.72)	1.157** (2.00)	-0.884*** (-2.92)	-0.993*** (-3.32)	-0.889*** (-2.88)	-0.955*** (-3.10)
Financial linkage	0.250*** (5.16)	0.236*** (4.75)	0.261*** (4.43)	0.248*** (5.06)	0.193*** (4.01)	0.180*** (3.56)	0.244** (3.27)	0.224*** (3.97)	0.381*** (5.96)	0.362*** (4.99)	0.360*** (6.86)	0.367*** (6.99)
Domestic Factors												
Financial depth												
M_capitalization	0.206*** (3.63)		0.231*** (04.05)	0.202*** (3.79)	0.328*** (2.47)		0.354*** (3.12)	0.260** (2.09)	0.128** (1.99)		0.010 (0.60)	0.144** (2.23)
Private credit		0.002 (1.59)				0.001 (0.37)				0.005** (2.18)		
Financial openness												
Chinn_Ito	-0.042 (-0.68)	-0.070 (-1.14)			-0.245*** (-3.20)	-0.252*** (3.12)			-0.044 (-0.47)	-0.070 (-0.83)		
Fal			-0.012 (0.011)	0.001 (-0.26)			-0.022 (-1.39)				-0.007 (0.20)	
Globalization								-0.022** (-2.13)				-0.011 (-0.86)
Public debt	-0.003 (-1.22)	-0.005* (-1.84)	-0.003 (-1.18)	-0.002 (-0.85)	-0.006** (-2.15)	-0.008*** (-2.61)	-0.006** (-2.28)	-0.008** (-2.49)	-0.001 (-0.12)	-0.002 (-0.28)	-3.9x10 ⁻⁴ (-0.09)	-0.003 (-0.08)
Growth shock	-0.144*** (-7.76)	-0.139*** (-7.48)	-0.145*** (-7.81)	-0.142*** (-7.45)	-0.176*** (-3.39)	-0.152*** (-2.86)	-0.198*** (-3.20)	-0.177** (-3.27)	-0.139*** (-6.67)	-0.139*** (-6.43)	-0.139*** (-6.70)	-0.139*** (-6.68)
Observations	2705	2684	2705	2502	1008	975	1008	854	1697	1709	1513	1648

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4

Table 4. Regression Results for Surges with Additional Control Variables: All Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(7)
Global Factors									
V IX	-0.029** (-2.12)	-0.029** (-2.09)	-0.029** (-2.10)	-0.033** (-2.36)	-0.028** (-2.05)	-0.030** (-2.19)	-0.029** (-2.11)	-0.031** (-2.22)	-0.029** (-2.09)
Liquidity	0.028* (1.65)	0.027 (1.61)	0.027 (1.61)	0.025 (1.49)	0.028* (1.65)	0.027 (1.57)	0.027 (1.61)	0.025 (1.53)	0.027 (1.61)
Interest rate	-0.059 (-0.89)	-0.034 (-0.51)	-0.037 (-0.57)	-0.069 (-0.82)	-0.038 (-0.58)	-0.052 (-0.77)	-0.037 (-0.58)	-0.053 (-0.77)	-0.033 (-0.53)
Growth	0.041 (0.84)	0.041 (0.82)	0.042 (0.85)	0.027 (0.54)	0.039 (0.81)	0.035 (0.72)	0.042 (0.84)	0.035 (0.68)	0.041 (0.84)
Contagion									
Regional linkage	0.521** (2.38)	0.532** (2.43)	0.532** (2.43)	0.646*** (2.81)	0.522** (2.38)	0.530** (2.37)	0.531** (2.43)	0.601*** (2.63)	0.554** (2.53)
Trade linkage	-0.353 (-1.35)	-0.326 (-1.20)	-0.326 (-1.20)	-0.365 (-1.39)	-0.308 (-1.12)	-0.333 (-1.22)	-0.322 (-1.17)	-0.450 (-1.58)	-0.437 (-1.54)
Financial linkage	0.141 (1.12)	0.131 (1.04)	0.130 (1.03)	0.127 (1.01)	0.128 (1.00)	0.118 (0.94)	0.131 (1.03)	0.139 (1.16)	0.138 (1.16)
Domestic Factors									
Financial depth	-0.064 (-0.65)	-0.098 (-0.97)	-0.100 (-0.83)	-0.068 (-0.61)	-0.100 (-1.01)	-0.030 (-0.29)	-0.110 (-0.87)	-0.43 (-0.42)	-0.059 (-0.59)
Financial openness	0.032 (0.46)	0.006 (0.10)	0.007 (0.13)	0.054 (0.97)	0.002 (0.04)	0.010 (0.18)	0.006 (0.12)	0.041 (0.72)	0.037 (0.67)
Public debt	-0.006* (-1.84)	-0.006* (-1.89)	-0.006* (-1.89)	-0.006** (-1.98)	-0.006* (-1.81)	-0.005* (-1.95)	-0.006* (-1.89)	-0.005* (-1.82)	-0.005* (-1.74)
Growth shock	0.065*** (2.64)	0.065*** (2.65)	0.064** (2.54)	0.062*** (2.60)	0.068*** (2.56)	0.069*** (2.72)	0.064** (2.55)	0.051** (2.10)	0.061** (2.51)
Regime1	0.024 (0.11)	Inflation 1.8 x 10 ⁻⁴ ** (2.36)	Reserve 1.5 x 10 ⁻⁴ (0.04)	Credit -0.019 (-1.17)	REX -0.135 (-0.71)	CA -0.002 (-1.42)	NFA 2.1 x 10 ⁻⁴ (0.21)	Quality-WGI -0.026 (-1.61)	Quality-ICRG -0.010 (-1.34)
Regime2	0.352 (1.37)								
Regime3	-0.009 (-0.05)								
Observations	2699	2696	2705	2608	2693	2695	2705	2642	2705

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4

Table 5. Regression Results for Surges with Additional Control Variables: Advanced Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Global Factors									
V IX	-0.028 (-1.36)	-0.032 (-1.60)	-0.029 (-1.41)	-0.030 (-1.40)	-0.026 (-1.38)	-0.029 (-1.43)	-0.029 (-1.40)	-0.029 (-1.41)	-0.029 (-1.41)
Liquidity	-0.031 (-1.19)	-0.036 (-1.43)	-0.033 (-1.24)	-0.033 (-1.21)	-0.031 (-1.16)	-0.030 (-1.15)	-0.031 (-1.16)	-0.033 (-1.21)	-0.031 (-1.17)
Interest rate	-0.149 (-1.23)	-0.241* (-1.88)	-0.198 (-1.53)	-0.215* (-1.65)	-0.209* (-1.64)	-0.215 (-1.62)	-0.201 (-1.62)	-0.185 (-0.80)	-0.257** (-2.17)
Growth	0.024 (0.28)	0.007 (0.08)	0.018 (0.20)	0.026 (0.32)	0.003 (0.04)	0.013 (0.15)	0.024 (0.28)	0.006 (0.06)	0.024 (0.30)
Contagion									
Regional linkage	0.197 (0.49)	0.309 (0.69)	0.299 (0.68)	0.171 (0.39)	0.252 (0.57)	0.253 (0.60)	0.267 (0.61)	0.150 (0.35)	0.141 (0.32)
Trade linkage	0.792 (0.81)	0.833 (0.95)	0.642 (0.76)	0.828 (1.22)	0.796 (1.09)	1.050 (1.62)	0.723 (0.82)	1.286 (1.41)	1.352 (1.49)
Financial linkage	-0.156 (-1.41)	-0.170 (-1.40)	-0.164 (-1.48)	-0.181 (-1.62)	-0.165 (-1.53)	-0.134 (-1.11)	-0.153 (-1.41)	-0.166 (-1.48)	-0.193* (-1.91)
Domestic Factors									
Financial depth	-0.231 (-0.71)	-0.100 (-0.38)	-0.167 (-0.55)	-0.088 (-0.30)	-0.188 (-0.68)	-0.137 (-0.46)	-0.236 (-0.78)	-0.087 (-0.29)	-0.101 (-0.34)
Financial openness	-2.9 x 10 ⁻⁴ (-0.00)	0.231 (1.34)	-0.013 (-0.06)	0.222* (1.82)	0.016 (0.13)	0.115 (1.01)	-0.064 (-0.25)	-0.003 (-0.02)	0.044 (0.31)
Public debt	-0.002 (-0.68)	-0.001 (-0.40)	-0.002 (-0.61)	-0.007 (-1.31)	-0.002 (-0.77)	-0.004 (-1.14)	-0.003 (-0.89)	-0.007* (-1.70)	-0.006* (-1.85)
Growth shock	0.089 (1.05)	0.091 (1.03)	0.090 (1.07)	0.085 (1.06)	0.098 (1.11)	0.094 (1.07)	0.086 (1.04)	0.091 (1.05)	0.082 (0.97)
Regime1	-0.053 (-0.14)	Inflation 0.135* (1.81)	Reserve -0.010 (-0.45)	Credit -0.119** (-2.02)	REX. -0.482 (-0.91)	CA -0.002 (-0.92)	NFA 0.001 (0.49)	Quality-WGI -0.118 (-1.50)	Quality-ICRG -0.054 (-1.47)
Regime2	-								
Regime3	0.020 (0.06)								
Observations	984	1008	1008	1008	1008	1008	1008	984	1008

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4

Table 6. Regression Results for Surges with Additional Control Variables: Emerging Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Global Factors									
V IX	-0.033*	-0.033*	-0.033*	-0.039**	-0.032*	-0.035*	-0.032*	-0.039**	-0.034**
	(-1.85)	(-1.74)	(-1.75)	(-2.06)	(-1.73)	(-1.84)	(-1.73)	(-2.04)	(-1.83)
Liquidity	0.059***	0.058***	0.057***	0.056***	0.058***	0.058***	0.056***	0.055***	0.056***
	(2.77)	(2.77)	(2.74)	(2.63)	(2.82)	(2.72)	(2.64)	(2.69)	(2.74)
Interest rate	-0.024	0.013	0.001	-0.025	0.010	-0.003	0.002	-0.009	0.017
	(-0.31)	(0.16)	(0.02)	(-0.23)	(0.13)	(-0.04)	(0.03)	(-0.11)	(0.24)
Growth	0.061	0.062	0.062	0.040	0.063	0.056	0.059	0.050	0.058
	(0.93)	(0.92)	(0.93)	(0.59)	(0.95)	(0.85)	(0.88)	(0.75)	(0.89)
Contagion									
Regional linkage	0.502**	0.571**	0.581**	0.694***	0.562**	0.563**	0.600**	0.542**	0.514**
	(2.04)	(2.32)	(2.20)	(2.69)	(2.27)	(2.24)	(2.36)	(2.00)	(1.99)
Trade linkage	-0.700***	-0.724***	-0.723***	-0.763***	-0.720***	-0.696***	-0.782***	-0.846***	-0.818***
	(-2.74)	(-3.06)	(-3.10)	(-3.15)	(-3.01)	(-2.81)	(-3.31)	(-3.24)	(-3.27)
Financial linkage	0.295*	0.268*	0.268*	0.264*	0.269*	0.238	0.271**	0.281*	0.275*
	(1.94)	(1.91)	(1.93)	(1.87)	(1.91)	(1.55)	(1.99)	(1.87)	(1.89)
Domestic Factors									
Financial depth	-0.068	-0.106	-0.087	-0.102	-0.108	-0.063	0.018	-0.045	-0.070
	(-0.56)	(-0.90)	(-0.51)	(-0.76)	(-0.93)	(-0.50)	(0.10)	(-0.35)	(-0.57)
Financial openness	-0.012	-0.025	-0.019	0.006	-0.027	-0.025	-0.028	-0.045	-0.035
	(-0.16)	(-0.38)	(-0.28)	(0.09)	(-0.40)	(-0.38)	(-0.42)	(-0.70)	(-0.52)
Public debt	-0.012***	-0.011***	-0.011***	-0.011***	-0.011***	-0.011***	-0.011***	-0.011***	-0.011***
	(-3.57)	(-3.58)	(-3.36)	(-3.71)	(-3.43)	(-3.73)	(-3.22)	(-4.24)	(-4.07)
Growth shock	0.059**	0.056**	0.055**	0.053**	0.056**	0.058**	0.056**	0.042*	0.054**
	(2.27)	(2.22)	(2.15)	(2.15)	(2.10)	(2.31)	(2.18)	(1.70)	(2.11)
	Regime1	Inflation	Reserve	Credit	REX.	CA	NFA	Quality-WGI	Quality-ICRG
	0.017	1.2 x 10 ⁻⁴	-0.001	-0.008	-0.073	-0.001	-0.002	-0.069***	-0.023*
	(0.08)	(1.32)	(-0.19)	(-0.38)	(-0.35)	(-0.93)	(-1.14)	(-2.77)	(-1.73)
	Regime2								
	0.531**								
	(2.09)								
	Regime3								
	0.096								
	(0.54)								
Observations	1694	1688	1697	1600	1685	1687	1697	1658	1697

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4

Table 7. Regression Results for Stops with Additional Control Variables: All Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Global Factors										
V IX	0.026*** (3.97)	0.026*** (4.23)	0.025*** (4.02)	0.027*** (4.11)	0.026*** (4.22)	0.026*** (4.14)	0.026*** (4.07)	0.025*** (3.93)	0.030*** (4.66)	0.025*** (3.97)
Liquidity	0.010 (0.56)	0.008 (0.48)	0.009 (0.54)	0.011 (0.60)	0.011 (0.55)	0.010 (0.56)	0.010 (0.53)	0.006 (0.35)	0.013 (0.74)	0.009 (0.54)
Interest rate	0.163*** (3.11)	0.160*** (2.83)	0.165*** (3.12)	0.163** (2.22)	0.167*** (3.00)	0.163*** (2.99)	0.181*** (3.44)	0.172*** (3.29)	0.227*** (3.25)	0.176*** (3.36)
Growth	-0.037 (-0.85)	-0.025 (-0.60)	-0.039 (-0.90)	-0.022 (-0.54)	-0.031 (-0.74)	-0.035 (-0.83)	-0.038 (-0.89)	-0.047 (-1.06)	0.002 (0.03)	-0.035 (-0.82)
Contagion										
Regional linkage	0.133 (0.75)	0.138 (0.78)	0.128 (0.72)	0.122 (0.67)	0.122 (0.69)	0.146 (0.79)	0.135 (0.76)	0.137 (0.77)	0.117 (0.60)	0.141 (0.77)
Trade linkage	-0.475 (-1.37)	-0.459 (-1.31)	-0.409 (-1.17)	-0.500 (-1.42)	-0.448 (-1.28)	-0.480 (-1.34)	-0.460 (-1.32)	-0.388 (-1.15)	-0.564 (-1.58)	-0.470 (-1.35)
Financial linkage	0.250*** (5.09)	0.251*** (5.17)	0.244*** (4.86)	0.246*** (4.79)	0.248*** (5.11)	0.256*** (5.36)	0.237*** (4.97)	0.254*** (5.16)	0.259*** (5.24)	0.252*** (5.15)
Domestic Factors										
Financial depth	0.217*** (3.69)	0.210*** (3.68)	0.300*** (3.25)	0.171*** (2.89)	0.213*** (3.74)	0.268*** (4.15)	0.283*** (4.16)	0.225*** (3.98)	0.220*** (3.95)	0.210*** (3.90)
Financial openness	-0.042 (-0.67)	-0.034 (-0.55)	-0.057 (-0.92)	-0.095 (-1.05)	-0.036 (-0.59)	-0.034 (-0.56)	-0.030 (-0.47)	-0.046 (-0.752)	-0.022 (-0.29)	-0.035 (-0.52)
Public debt	-0.003 (-1.26)	-0.003 (-1.20)	-0.003 (-1.19)	-0.003 (-1.40)	-0.003 (-1.08)	-0.003 (-1.05)	-0.003 (-1.26)	-0.002 (-1.03)	-0.003 (-1.33)	-0.003 (-1.13)
Growth shock	-0.143*** (-7.45)	-0.146*** (-7.87)	-0.146*** (-7.73)	-0.155*** (-7.30)	-0.140*** (-7.25)	-0.144*** (-7.82)	-0.145*** (-7.77)	-0.137*** (-6.83)	-0.168*** (-7.48)	-0.143*** (-7.60)
Regime1	0.070 (0.47)	Inflation 4.5x10 ⁻⁴ *** (3.77)	Reserve -0.009* (0.005)	Credit 0.030 (1.15)	REX. -0.210 (-1.35)	CA -0.002** (-1.96)	NFA -0.001** (-0.001)	Surge 0.451** (2.36.)	Quality-WGI -0.003 (-0.14)	Quality-ICRG -0.002 (-0.025)
Regime2	0.147 (0.63)									
Regime3	-0.061 (-0.44)									
Observations	2699	2696	2705	2470	2693	2695	2705	2705	2642	2705

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4

Table 8. Regression Results for Stops with Additional Control Variables: Advanced Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Global Factors										
V IX	0.020*	0.013	0.020*	0.020*	0.020*	0.019*	0.019*	0.020*	0.025**	0.020**
	(1.82)	(1.16)	(1.85)	(1.89)	(1.88)	(1.85)	(1.86)	(1.87)	(2.54)	(1.91)
Liquidity	0.034	0.198	0.032	0.033	0.033	0.033	0.032	0.034	0.059**	0.032
	(1.14)	(0.63)	(1.05)	(1.06)	(1.07)	(1.06)	(1.06)	(1.06)	(1.98)	(1.05)
Interest rate	0.174**	0.121	0.206***	0.224***	0.219**	0.194***	0.186***	0.223***	0.868***	0.217**
	(2.34)	(1.45)	(2.79)	(2.82)	(2.34)	(2.56)	(2.60)	(3.06)	(3.39)	(2.14)
Growth	-0.050	-0.086	-0.050	-0.045	-0.043	-0.048	-0.041	-0.069	-0.053	-0.052
	(-0.75)	(-1.18)	(-0.79)	(-0.66)	(-0.61)	(-0.71)	(-0.62)	(-0.90)	(-0.68)	(-0.73)
Contagion										
Regional linkage	-0.600**	-0.661***	-0.604**	-0.585***	-0.615**	-0.617**	-0.624**	-0.634**	-0.812***	-0.611**
	(-2.52)	(-2.73)	(-2.32)	(-2.32)	(-2.42)	(-2.47)	(-2.48)	(-2.47)	(-3.35)	(-2.39)
Trade linkage	1.036*	1.045**	1.050*	1.051**	1.093**	1.140**	1.113**	0.964	1.089**	1.034
	(1.73)	(1.96)	(1.93)	(2.01)	(2.01)	(1.96)	(2.10)	(1.59)	(1.99)	(1.57)
Financial linkage	0.194***	0.188***	0.193***	0.204***	0.202***	0.195***	0.203***	0.200***	0.205***	0.193***
	(4.05)	(3.81)	(4.07)	(4.65)	(3.77)	(3.80)	(4.54)	(3.95)	(4.38)	(4.03)
Domestic Factors										
Financial depth	0.356*	0.431***	0.360**	0.003**	0.316**	0.340***	0.245**	0.352***	0.295**	0.309***
	(1.75)	(3.03)	(2.18)	(1.98)	(2.33)	(2.60)	(2.32)	(2.71)	(2.16)	(2.14)
Financial openness	-0.233**	0.047	-0.318**	-0.399**	-0.233***	-0.224**	-0.390**	-0.236***	-0.256***	-0.249**
	(-2.17)	(0.34)	(-2.08)	(-2.25)	(-3.24)	(-2.11)	(-1.99)	(-3.12)	(-3.42)	(-3.08)
Public debt	-0.006**	-0.005	-0.005	-0.003	-0.006**	-0.006**	-0.005**	-0.005*	-0.008**	-0.005*
	(-2.28)	(-1.58)	(-1.51)	(-0.80)	(-2.21)	(-2.15)	(-2.09)	(-1.94)	(-3.61)	(-1.94)
Growth shock	-0.176***	-0.188***	-0.180***	-0.176***	-0.179***	-0.179***	-0.178***	-0.170***	-0.230***	-0.175***
	(-3.30)	(-3.25)	(-3.30)	(-3.30)	(-3.57)	(-3.34)	(-3.37)	(-2.98)	(-4.25)	(-3.39)
	Regime1	Inflation	Reserve	Credit	REX.	CA	NFA	Surge	Quality-WGI	Quality-ICRG
	0.130	0.150**	-0.016	0.098	0.211	-0.001	0.001	0.404	-0.056	0.010
	(0.52)	(2.52)	(-0.66)	(1.01)	(0.71)	(-0.36)	(1.25)	(1.20)	(-0.98)	(0.26)
	Regime2									
	0.708									
	(1.41)									
	Regime3									
	0.074									
	(0.34)									
Observations	1005	1008	1008	1008	1008	1008	1008	1008	984	1008

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4

Table 9. Regression Results for Stops with Additional Control Variables: Emerging Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Global Factors										
V IX	0.024*** (2.60)	0.025** (2.50)	0.024*** (2.68)	0.025*** (2.60)	0.024*** (2.78)	0.025*** (2.75)	0.025*** (2.74)	0.024** (2.42)	0.024** (2.50)	0.021** (2.22)
Liquidity	-0.001 (-0.02)	0.003 (-0.14)	-0.002 (-0.09)	-0.001 (-0.02)	-1.6x10 ⁻⁴ (-0.01)	0.001 (0.04)	-0.003 (-0.12)	-0.007 (-0.36)	0.003 (0.13)	-3.4x10 ⁻⁴ (-0.02)
Interest rate	0.135** (2.12)	0.132* (1.79)	0.136** (2.06)	0.128 (1.13)	0.148** (2.07)	0.121* (1.71)	0.156** (2.38)	0.142*** (2.21)	0.205*** (2.63)	0.178*** (2.81)
Growth	-0.051 (-0.89)	-0.029 (-0.53)	-0.045 (-0.83)	-0.027 (-0.52)	-0.035 (-0.65)	-0.043 (-0.77)	-0.042 (-0.73)	-0.054 (-0.93)	-0.029 (-0.45)	-0.052 (-0.92)
Contagion										
Regional linkage	0.421* (1.91)	0.426** (2.00)	0.451** (1.97)	0.453** (2.00)	0.394* (1.87)	0.474** (2.00)	0.423* (1.91)	0.435** (2.07)	0.444** (2.06)	0.4452** (2.19)
Trade linkage	-0.892*** (-2.92)	-0.875*** (-2.87)	-0.783** (-2.43)	-1.044*** (-2.89)	-0.851*** (-2.77)	-0.959*** (-3.03)	-0.947*** (-3.05)	-0.800*** (-2.74)	-1.170*** (-3.89)	-1.115*** (-3.83)
Financial linkage	0.361*** (5.31)	0.377*** (6.01)	0.362*** (5.41)	0.398*** (5.99)	0.372*** (5.93)	0.397*** (6.31)	0.369*** (5.63)	0.387*** (5.83)	0.408*** (5.97)	0.397*** (5.83)
Domestic Factors										
Financial depth	0.124** (2.13)	0.138** (2.17)	0.326** (2.25)	0.064 (0.62)	0.142** (2.20)	0.274*** (3.24)	0.428*** (2.82)	0.152** (2.36)	0.180*** (2.64)	0.173*** (2.58)
Financial openness	-0.052 (-0.60)	-0.032 (-0.35)	-0.008 (-0.09)	-0.075 (-0.71)	-0.031 (-0.34)	-0.039 (-0.44)	-0.048 (-0.55)	-0.057 (-0.61)	-0.050 (-0.47)	-0.063 (-0.63)
Public debt	0.7x10 ⁻⁴ (0.02)	-1.5x10 ⁻⁴ (-0.04)	0.001 (0.27)	-4.7x10 ⁻⁴ (-0.11)	2.9 (0.07)	0.002 (-0.36)	-0.001 (-0.16)	1.6x10 ⁻⁴ (0.04)	-0.001 (-0.21)	5.0x10 ⁻⁴ (0.13)
Growth shock	-0.136*** (-6.04)	-0.142*** (-6.74)	-0.139*** (-6.56)	-0.151*** (-6.39)	-0.133*** (-6.13)	-0.142*** (-6.66)	-0.144*** (-6.61)	-0.131*** (-5.79)	-0.158*** (-6.04)	-0.144*** (-6.81)
	Regime1	Inflation	Reserve	Credit	REX.	CA	NFA	Surge	Quality-WGI	Quality-ICRG
	0.164 (0.83)	4.7x10 ⁻⁴ *** (3.45)	-0.013 (-1.51)	0.043 (1.20)	-0.329* (-1.80)	-0.004*** (-2.67)	-0.005** (-2.43)	0.490** (2.03)	-0.105*** (-2.66)	-0.049*** (-2.58)
	Regime2									
	0.081 (0.32)									
	Regime3									
	-0.163 (-0.91)									
Observations	1694	1688	1697	1600	1685	1687	1697	1697	1658	1697

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4.

Table 10. Effects of Institutional Quality on Surges in Emerging Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Global Factors													
V IX	-0.039** (-2.04)	-0.039** (-2.04)	-0.038** (-2.01)	-0.039** (-2.06)	-0.039** (-2.04)	-0.038** (-2.02)	-0.033* (-1.76)	-0.034* (-1.84)	-0.034* (-1.82)	-0.032* (-1.71)	-0.035* (-1.87)	-0.033* (-1.77)	-0.035* (-1.86)
Liquidity	0.056*** (2.73)	0.055*** (2.70)	0.055*** (2.71)	0.055*** (2.70)	0.055*** (2.69)	0.054*** (2.68)	0.058*** (2.82)	0.055*** (2.70)	0.056*** (2.72)	0.056*** (2.68)	0.056*** (2.71)	0.057*** (2.78)	0.056*** (2.72)
Interest rate	-0.011 (-0.13)	-0.012 (-0.15)	-0.012 (-0.15)	-0.007 (-0.09)	-0.010 (-0.13)	-0.011 (-0.14)	0.006 (0.08)	0.037 (0.49)	0.020 (0.28)	0.014 (0.19)	0.026 (0.35)	0.005 (0.07)	0.022 (0.30)
Growth	0.052 (0.77)	0.050 (0.75)	0.052 (0.77)	0.050 (0.75)	0.050 (0.74)	0.051 (0.75)	0.061 (0.91)	0.054 (0.82)	0.058 (0.88)	0.057 (0.86)	0.056 (0.85)	0.062 (0.94)	0.056 (0.86)
Contagion													
Regional linkage	0.548** (2.02)	0.537** (1.97)	0.572** (2.11)	0.538** (2.00)	0.550** (2.03)	0.549** (2.01)	0.584** (2.28)	0.520** (2.08)	0.534** (2.10)	0.519** (2.01)	0.522** (2.05)	0.541** (2.05)	0.517** (2.04)
Trade linkage	-0.828*** (-3.23)	-0.841*** (-3.21)	-0.815*** (-3.21)	-0.858*** (-3.26)	-0.847*** (-3.26)	-0.824*** (-3.24)	-0.711*** (-3.00)	-0.863*** (-3.32)	-0.818*** (-3.29)	-0.772*** (-3.23)	-0.849*** (-3.35)	-0.753*** (-3.16)	-0.812*** (-3.30)
Financial linkage	0.278* (1.86)	0.281* (1.87)	0.277* (1.88)	0.282* (1.86)	0.281* (1.87)	0.277* (1.88)	0.266* (1.91)	0.285* (1.90)	0.275* (1.89)	0.273* (1.93)	0.278* (1.89)	0.267* (1.90)	0.276* (1.90)
Domestic Factors													
Financial depth	-0.047 (-0.37)	-0.045 (-0.35)	-0.059 (-0.48)	-0.040 (-0.32)	-0.049 (-0.39)	-0.053 (-0.42)	-0.115 (-0.99)	-0.066 (-0.57)	-0.084 (-0.73)	-0.103 (-0.87)	-0.073 (-0.63)	-0.087 (-0.70)	-0.069 (-0.57)
Financial openness	-0.038 (-0.60)	-0.051 (-0.77)	-0.034 (-0.53)	-0.048 (-0.74)	-0.047 (-0.71)	-0.042 (-0.64)	-0.013 (-0.19)	-0.029 (-0.46)	-0.030 (-0.46)	-0.025 (-0.36)	-0.032 (-0.49)	-0.027 (-0.40)	-0.031 (-0.48)
Public debt	-0.011*** (-4.10)	-0.011*** (-4.18)	-0.011*** (-4.10)	-0.011*** (-4.26)	-0.011*** (-4.27)	-0.011*** (-4.22)	-0.011*** (-3.39)	-0.011*** (-4.23)	-0.011*** (-4.13)	-0.011*** (-3.73)	-0.010*** (-4.17)	-0.011*** (-3.81)	-0.010*** (-3.75)
Growth shock	0.041* (1.68)	0.042* (1.71)	0.041* (1.70)	0.041* (1.68)	0.042* (1.72)	0.042* (1.71)	0.055** (2.16)	0.054** (2.13)	0.055** (2.12)	0.056** (2.20)	0.054** (2.13)	0.054** (2.13)	0.054** (2.11)
Constant	-1.258 (-1.45)	-1.380 (-1.61)	-1.493* (-1.72)	-1.410* (-1.63)	-1.444* (-1.69)	-1.298 (-1.51)	-1.969 (-1.59)	-0.806 (-0.89)	-1.203 (-1.34)	-1.125 (-1.05)	-0.922 (-1.01)	-1.285 (-1.34)	0.479 (0.39)
	WGI <i>Voice</i>	WGI <i>Effective</i>	WGI <i>Stability</i>	WGI <i>Corruption</i>	WGI <i>Law</i>	WGI <i>Regulation</i>	ICRG <i>Stability</i>	ICRG <i>Corruption</i>	ICRG <i>Law</i>	ICRG <i>Bureau</i>	ICRG <i>Socio</i>	ICRG <i>Invest</i>	ICRG <i>Conflict</i>
	-0.516*** (-2.63)	-0.350** (-2.56)	-0.410** (-2.28)	-0.369*** (-3.04)	-0.332*** (-2.83)	-0.350*** (-2.56)	0.053 (0.41)	-0.309*** (-3.14)	-0.134* (-1.77)	-0.168 (-0.77)	-0.146*** (-2.62)	-0.040 (-0.73)	-0.113** (-2.05)
Observations	1658	1658	1658	1658	1658	1658	1697	1697	1697	1677	1697	1697	1697

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4.

See Table A2 for the list of individual components of institutional quality.

Table 11. Effects of Institutional Quality on Stops in Emerging Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Global Factors													
VIX	0.025** (2.50)	0.024** (2.51)	0.024** (2.47)	0.024** (2.52)	0.024** (2.51)	0.024** (2.55)	0.023** (2.47)	0.022** (2.34)	0.022** (2.35)	0.021** (2.20)	0.022** (2.29)	0.023** (2.48)	0.020** (2.04)
Liquidity	0.004 (0.17)	0.003 (0.15)	0.003 (0.11)	0.003 (0.15)	0.003 (0.12)	0.002 (0.08)	-0.003 (-0.12)	-0.003 (-0.10)	-0.001 (-0.03)	0.002 (-0.10)	4.2 x10 ⁻⁴ (0.02)	-0.001 (-0.03)	-4.5 x10 ⁻⁴ (-0.02)
Interest rate	0.202** (2.56)	0.198** (2.53)	0.217*** (2.71)	0.200*** (2.57)	0.201*** (2.58)	0.202*** (2.61)	0.140** (2.06)	0.190*** (2.97)	0.184*** (2.84)	0.180*** (2.79)	0.186*** (2.85)	0.156** (2.40)	0.168*** (2.74)
Growth	-0.031 (-0.48)	-0.028 (-0.44)	-0.034 (-0.54)	-0.027 (-0.43)	-0.026 (-0.42)	-0.024 (-0.38)	-0.043 (-0.79)	-0.054 (-0.95)	-0.046 (-0.83)	-0.040 (-0.70)	-0.055 (-0.94)	-0.049 (-0.86)	-0.053 (-0.94)
Contagion													
Regional linkage	0.445** (2.06)	0.440** (2.03)	0.467** (2.15)	0.441** (2.03)	0.442** (2.03)	0.434** (2.01)	0.436** (2.07)	0.429** (2.05)	0.439*** (2.05)	0.400* (1.87)	0.461** (2.16)	0.409** (1.96)	0.474** (2.31)
Trade linkage	-1.144*** (-3.83)	-1.166*** (-3.90)	-1.183*** (-3.98)	-1.150*** (-3.80)	-1.154*** (-3.82)	-1.122*** (-3.69)	-0.981*** (-3.31)	-1.057*** (-3.65)	-1.063*** (-3.58)	-1.055*** (-3.43)	-1.069*** (-3.58)	-0.962*** (-3.22)	-1.089*** (-3.82)
Financial linkage	0.402*** (5.96)	0.407*** (5.93)	0.409*** (6.05)	0.406*** (5.94)	0.406*** (5.96)	0.404*** (6.04)	0.384*** (5.88)	0.402*** (5.99)	0.394*** (5.95)	0.393*** (5.71)	0.392*** (5.85)	0.388*** (5.88)	0.388*** (5.86)
Domestic Factors													
Financial depth	0.180*** (2.58)	0.181*** (2.62)	0.181*** (2.65)	0.173*** (2.62)	0.170*** (2.61)	0.168*** (2.59)	0.159** (2.30)	0.152** (2.30)	0.145** (2.47)	0.155** (2.17)	0.148** (2.48)	0.159** (2.45)	0.167** (2.52)
Financial openness	-0.041 (-0.39)	-0.059 (-0.55)	-0.033 (-0.31)	-0.050 (-0.48)	-0.049 (-0.47)	-0.045 (-0.43)	-0.070 (-0.71)	-0.044 (-0.47)	-0.045 (-0.48)	-0.057 (-0.58)	-0.046 (-0.50)	-0.059 (-0.59)	-0.048 (-0.49)
Public debt	4.4x10 ⁻⁴ (-0.12)	4.4x10 ⁻⁴ (-0.13)	4.4x10 ⁻⁴ (-0.13)	9.6x10 ⁻⁴ (-0.26)	-0.001 (-0.13)	-0.002 (-0.43)	1.1x10 ⁻⁴ (0.03)	-1.5 x10 ⁻⁴ (-0.04)	-2.7 x10 ⁻⁴ (-0.07)	2.0 x10 ⁻⁴ (0.06)	1.3x10 ⁻⁴ (0.04)	-5.3 x10 ⁻⁴ (-0.13)	0.001 (0.26)
Growth shock	-0.157*** (-6.05)	-0.158*** (-6.06)	-0.155*** (-6.01)	-0.158*** (-6.07)	-0.159*** (-6.07)	-0.158*** (-6.04)	-0.140*** (-6.76)	-0.141*** (-6.55)	-0.146*** (-7.00)	-0.148*** (-7.42)	-0.142*** (-6.82)	-0.139*** (-6.59)	-0.147*** (-6.60)
	WGI <i>Voice</i>	WGI <i>Effective</i>	WGI <i>Stability</i>	WGI <i>Corruption</i>	WGI <i>Law</i>	WGI <i>Regulation</i>	ICRG <i>Stability</i>	ICRG <i>Corruption</i>	ICRG <i>Law</i>	ICRG <i>Bureau</i>	ICRG <i>Socio</i>	ICRG <i>Invest</i>	ICRG <i>Conflict</i>
	-0.801*** (-2.57)	-0.524** (-2.49)	-0.924*** (-3.12)	-0.452** (-2.41)	-0.459*** (-2.47)	-0.520** (-2.42)	-0.329* (-1.76)	-0.347** (-2.06)	-0.213* (-1.90)	-0.542 (-1.59)	-0.196* (-1.86)	-0.111 (-1.36)	-0.207*** (-2.66)
Observations	1658	1658	1658	1658	1658	1658	1697	1697	1697	1677	1697	1697	1697

Notes: (1) Figures in parentheses are z-values. (2) Significance at 1%, 5% and 10% are indicated by ***, ** and *. (3) Sample period: 1990Q1-2011Q4.

See Table A2 for the list of individual components of institutional quality.

Table A1. Country list

<i>Emerging Countries</i>		<i>Developed Countries</i>
Argentina	Peru	Australia
Bangladesh	Philippines	Austria
Bolivia	Poland	Belgium
Brazil	Romania	Canada
Chile	Russian Federation	Denmark
Colombia	Singapore	Finland
Croatia	Slovak Republic	France
Czech Republic	Slovenia	Germany
Estonia	South Africa	Greece
Guatemala	Sri Lanka	Iceland
Hong Kong	Thailand	Ireland
Hungary	Turkey	Italy
India	Venezuela	Japan
Indonesia		Netherlands
Israel		New Zealand
Korea		Norway
Latvia		Portugal
Lithuania		Spain
Malaysia		Sweden
Mexico		Switzerland
Nicaragua		United Kingdom
Panama		United States

Table A2. Data descriptions and sources

Variable	Description	Source
<i>VIX</i>	Global risk: Volatility of S&P index options	Chicago Board of Option Exchange
<i>Liquidity</i>	Global liquidity: The year-over-year growth rate of the global money supply, defined as the sum of M2 in the US, Euro area and Japan, and M4 in the UK, all converted into US dollars	Authors' calculation, IMF, IFS
<i>Interest rate</i>	Global interest: Average rate of long-term government bonds in the US, Euro area and Japan	Authors' calculation, IMF, IFS
<i>Growth</i>	Global growth: World real GDP growth rate	IMF, IFS
<i>Regional</i>	Regional dummy	Authors' calculation, IMF, IFS
<i>Trade</i>	Trade linkage calculated from (3) in the text	Authors' calculation, IMF, DOT
<i>Financial</i>	Financial linkage calculated from (4) in the text	Authors' calculation, BIS
<i>M_capitalization</i>	Stock market capitalization (% of GDP)	World Bank, WDI
<i>Private credit</i>	Domestic credit to the private sector (% of GDP)	World Bank, WDI
<i>Chinn_Ito</i>	Capital openness index of Chinn and Ito	Chinn and Ito (2008)
<i>Fal</i>	Sum of foreign assets and liabilities (% of GDP)	Lane and Milesi-Ferretti (2007)
<i>Globalization</i>	A globalization index	Dreher et al. (2008)
<i>Public debt</i>	Government debt (% of GDP)	Abbas et al. (2010)
<i>Growth shock</i>	Deviation of domestic actual and trend growth rate (obtained from HP filter)	Authors' calculation, IMF, IFS
<i>Regime</i>	<i>De facto</i> exchange rate regime of Reinhart and Rogoff (2004): <i>De facto</i> peg = 1, <i>De facto</i> crawling peg = 2, Managed floating = 3, Freely floating = 4 (benchmark). See Reinhart and Rogoff (2004) for details on the classification code.	Reinhart and Rogoff (2004)
<i>Inflation</i>	A percentage change in Consumer Price Index	IMF, IFS
<i>Reserve</i>	International reserves (% of GDP)	Authors' calculation, IMF, IFS
<i>CA</i>	Cumulative current account balance over the preceding 12 quarters (% of GDP)	Authors' calculation, IMF, IFS
<i>NFA</i>	Net foreign assets (% of GDP)	Lane and Milesi-Ferretti (2007)
<i>Credit</i>	Credit rating. It is numbered off from 1 to 20. Higher number denotes higher ranking.	Authors' calculation, Standard & Poors
<i>REX</i>	Bilateral US dollar real exchange rate constructed with CPI in general. Bilateral real exchange rates against Germany for members of euro zone.	Authors' calculation, IFS
<i>Quality_WGI</i>	World Governance Indicators. It comprises the sum of six components: (1) voice and accountability (<i>Voice</i>), (2) political stability and absence of violence/terrorism (<i>Stability</i>), (3) government effectiveness (<i>Effective</i>), (4) regulatory quality (<i>Regulation</i>), (5) rule of law (<i>Law</i>), and (6) control of corruption (<i>Corruption</i>).	Authors' calculation, World Bank, WGI
<i>Quality_ICRG</i>	Political-risk index. It comprises twelve components. But the composite index used in this paper consists of the sum of eight of them which we think are more relevant to capital flows: (1) government stability (<i>Stability</i>), (2) socioeconomic conditions (<i>Socio</i>), (3) investment profile (<i>Invest</i>), (4) external and internal conflict (<i>Conflict</i>), (5) corruption (<i>Corruption</i>), (6) law and order (<i>Law</i>), and (7) bureaucracy quality (<i>Bureau</i>).	Authors' calculation, PRS Group, ICRG

Note: DOT, *Direction of Trade*; IFS, *International Financial Statistics*; WDI, *World Development Indicators*; WGI, *World Governance Indicators*.