Extreme Capital Flows in Emerging Markets: A Blessing or a Curse?

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Abstract

The impact of extreme movements in capital flows on emerging market's GDP is still an unresolved question in the international finance literature. A substantial literature has analyzed the effect of capital flows on output, but there is a lack formal analysis of causal effects of "extreme" flows on nations's economic outcomes. I revisit the analysis of the effect of the extreme net inflows (surges) and extreme net outflows (flights) on aggregate output. I deal with the potential bias issues from non random assignment of surges and flights. Using a propensity score method for time series data in a local projection framework, I estimate the average effects of the extreme flows on country's output. I use a statistical model for identifying these extreme flows. The results indicate that surges are contractionary in the medium horizon whereas the flights do not have any significant effect on output.

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1 Introduction

Following the Great Recession of 2008-09, there has been a renewed interest in understanding cross border capital flows into and out of emerging markets, which experienced exceptionally large inflows in capital when the interest rates in the developed nations hit the "zero lower bound" (See Fratzscher, Lo Duca, and Straub, 2013; Binici and Yrkoglu, 2011; Balakrishnan et al., 2013). This led to a concern among policymakers in the emerging markets that once the developed nations start unwinding such unconventional expansionary monetary policies, there might be a reversal in the direction of the capital flows from these emerging markets, which may have negative consequences on the emerging economies (see Eichengreen and Gupta, 2015; Aizenman, Binici, and Hutchison, 2014; Powell, 2013, among others).

A substantial literature focuses on the determinants of the extreme capital flow episodes. Forbes and Warnock (2012) analyze determinants of extreme movements in both inflows and outflows using gross flow data for a sample of both developed and emerging markets. Ghosh et al. (2014) analyze the determinants of surges (abnormally large net inflows) specifically for emerging market economies, while Ahmed and Zlate (2013) analyze the determinants of net capital inflows in general, and not just the surges in net private flows. These recent studies identify various global factors ("push factors") and domestic factors ("pull factors") as important determinants of capital flow episodes.[1]

Analysis of impacts of extreme flows on emerging economies' outcomes have been less explored. The existing literature analyzes their impacts on various macroeconomic and financial variables like on output growth, real exchange rate, current account, credit growth as well as on the likelihood of financial crises (e.g., Caballero, 2016, Hutchison and Noy, 2006, Edwards, 2000, Cardarelli, Elekdag, and Kose, 2010).

I focus on the potential effects of the extreme movements in net capital flows on GDP growth for emerging markets. Whether the impact of these extreme flows (inflows or outflows) is a blessing or a curse for the emerging economy is still an open debate. According to the IMF Executive Summary Report (2012), capital flows can be beneficial as it allows for efficient allocation of resources, but at the same time it can also amplify financial and macroeconomic volatility through appreciation or depreciation of domestic currency. Understanding these impacts is crucial for making policy choices in the emerging market economies. The IMF now acknowledges that

[1] Other related studies include for example, Fernandez-Arias (1996), Chuhan, Claessens, and Mamingi (1998), Kim (2000), Fratzscher (2011)

regulating capital can be necessary under certain circumstances.

Standard textbook models of the open economy, such as the Mundell-Fleming model, suggest that surges in capital flows cause appreciation of real exchange rates, leading to a decline in net exports (see Blanchard et al., 2015).[2] This in turn leads to a decline in the output of the country for a given domestic monetary policy rate. Blanchard et al. (2015) extend these standard textbook models to incorporate different kinds of flows, in particular, bond and non-bond flows, and analyze the effects of capital inflows on emerging markets' output and credit growth rates. They conclude that the effect of capital inflows on output depends on the nature of the flows. Blanchard et al. (2015) did not consider any extreme movement in capital flows like surges or flights.

Reinhart and Reinhart (2009), identify abnormal increase in capital inflows ("bonanzas"), using current account data as proxy, and analyze their impacts. They find that capital flow bonanzas are associated with high output volatility as well as lower output growth in the years following bonanzas. However, they do not conduct any causal analysis. Also their sample of countries is not restricted to emerging markets. Powell and Tavella (2015) analyze the impact of surges in gross capital inflows on the likelihood of recession and banking crisis for a sample of 44 emerging countries .

I shed further light on this strand of the literature by analyzing the impact of extreme events in both capital inflows and outflows for emerging markets. One of the concerns with the earlier studies is that there is no consensus in defining these extreme capital flows. For example, Reinhart and Reinhart (2009) define capital flow bonanzas for a country as periods where the capital flows are in the top 20 percentile of their country-specific distribution. Powell and Tavella (2015) define surges as deviation from their historical trend and also define a threshold value for the deviation.[3] I use a formal statistical model to identify the surges and flights. The first chapter of my dissertation, proposes a statistical model for identifying these extreme flows. In particular, I use a three state Markov Switching model to identify periods of extreme flows (surges and flights), periods of high flows, and period of low flows by allowing the means of the absolute values of the flows to switch between the states. I provide a brief description of the method of identification of the surges and flights using the Markov switching model in Section 2.

There is a potential "selection on observables" problem while analyzing effects

[2]See (Mundell, 1963; Fleming, 1962; Dornbusch, 1976).

[3]They define a surge if the gross inflow is one standard deviation point higher than its historical trend.

of surge and/or flights on country's output using observational data. The literature on the causes of these extreme capital flows suggests that there are some global and domestic factors that are important influences on the incidence of these episodes. For example, countries with a higher growth rate of output and more open capital accounts tend to have a higher incidence of surges (Ghosh et al. (2014)). This implies that occurrence of these extreme flows are not the result of a random experiment. In such circumstances, standard OLS estimation is likely to give biased results. I address this issue by using "Inverse Probability Weighting" estimator as in Angrist, Jordà, and Kuersteiner (2013). It is a method widely used in the microeconomic studies to take into account the non random assignment of a treatment variable. The method involves weighting each observation by the inverse probabilities or propensity scores of the endogenous treatment variables then using these weights in calculating mean of the outcome variable in the treated and the non-treated sample. The endogenous treatments here are the occurrence of surges and flights. The propensity scores are the estimated probabilities obtained from fitting a probit or a logistic model of the endogenous treatment variable on various indicators that might plausibly influence receipt of the treatment. This inverse weighting assigns a higher weight to the observations that received a treatment but were less likely to be treated. Similarly, for the observations that did not receive a treatment but were more likely to receive one are assigned a higher weight. Using this propensity score method in a time -series framework allows a causal analysis of the extreme capital flows on countries's output.

In particular, I conduct a dynamic analysis of the effects of the surges and flights separately on countries's GDP growth using the local projection inverse probability weighting regression adjustment estimator proposed by Jordà and Taylor (2013). This methodology uses the inverse probability weighting estimator in a local projection framework, where the local projection method as proposed by Jordà (2005) is an alternative to the standard vector autoregression (VAR) approach for analyzing dynamic impulse responses. Local projections are based on dynamic multi-step forecasting. It is a more flexible method than the VAR approach. It allows for inclusion of other variables and lags in the specification of the conditional mean of the outcome variable. Thus this framework allows to incorporate the inverse probability weighting estimation to take care of the selection bias and obtain dynamic impulse responses of surges and flights on various economic outcomes.

The results indicate that there is detrimental effect on emerging market's output in the medium term following a surge, but there is no significant effect on output in the year immediately after the surge. Five years after a surge, the level of output is

3.6 percentage points lower than it would have been had the surge not taken place. Also, the effect is found to be underestimated when surges are defined using Reinhart and Reinhart (2009) methodology.

For flights, the OLS estimates indicate there is a contractionary impact on output in the same year to five years out following the incidence of a flight. The magnitude of the effect grows with the horizon. The real GDP growth rate for a country receiving a flight is 1.6 percentage points lower than if it had not received a flight whereas five years later the level of output is 2.7 percentage points lower. However, the estimation based on propensity score methods suggests that there is no significant effect of flight on output. The results are not statistically significant. But the coefficients are all negative. This is in contrast to the earlier studies which usually associate flights with contraction in output.

The rest of the paper is organized as follows. Section 2, presents a brief description of the method to identify the surges and flights. Section 3 presents the empirical methodology for analyzing the causal effects of the extreme flows. The results are discussed in the Section 4 and, finally, Section 6 concludes.

2 Extreme Flows: Identification

The first chapter of my dissertation focuses on the identification of extreme events in net capital flows as a percentage of GDP, both into and out of the country, using a sample of 36 emerging market economies for the period 1980 to 2014.[4] The list of countries are provided in the Appendix A. The data for net private capital flows is obtained from the IMF Balance of Payments Statistics database (IMF-BOP). The series is constructed by using net financial account data from the IMF BOP database and subtracting official government loans which are essentially not part of private capital flows.

The surges and flights in net capital flows are identified using a three state Markov switching model allowing switches in the mean of the absolute values of the net flows for each country where the three states are extreme, high, and low net flows. In particular, surges are defined as the observations in a country where the probability of being in the extreme state is higher than the high and the low states, and have positive net flows. Similarly, the flights are defined as the observations in a country where the probability of being in the extreme state is higher than the high and the

[4]The data period ranges from 1980 to 2014 for most of the countries in the sample. The starting and end period of the data, however, varies with countries.

low states, and have negative flows on a net basis. I also define the high and low net inflows and outflows in a similar way.

In this paper, I focus only on the extreme events and use the periods of surges and flights identified in my first chapter to analyze their impacts on the country's economies. I found, out of the total sample of 36 countries over the period of 35 years from 1980 to 2014, 7.8% of country-year observations were surges and 3% of country-year observations were flights.The mean value of net flows in surges is 3.2% of GDP, whereas for flights is -3.3% of GDP.

These surges and flights are identified using quarterly data on net capital flows as a percentage of GDP. However, the output data for these countries are available only at an annual level for the entire sample period. Hence, I convert these quarterly surges and flights to an annual frequency for each country. I consider a year to be in a surge if there is at least one quarter in surge in that year. Similarly, if there is a flight in at least one quarter in a year in a country, the entire year is considered to be in a flight for that country. A summary of the annual surges and flights by country is provided in Table 2. There are total of 171 surges (18%) and 73 flights (8%) out of the total sample.

3 Methodology

My objective is to look at the impact of the extreme episodes in net capital flows (both inflows and outflows) on emerging market economies. Specifically, I conduct a dynamic analysis of the effects of the extreme flows on country's real GDP growth. In order to do that, I employ the local projection (LP) framework as proposed by Jordà (2005), which is an alternative method of looking at the impulse responses of a shock in some economic variable of interest. This method provides a more flexible framework for modeling the dynamic responses in comparison to the standard VAR approach of estimating impulse response functions. It is easier to use in a panel framework, allows estimation of impulse responses for non-linear models. It also allows to include other variables in the specification. For detailed explanation of the framework, please refer to Jordà (2005). I provide a brief description of the framework in the following section.

3.1 Local Projection Framework

The LP method calculates the h-step ahead linear projection of the response of an outcome variable y_{it} for country i in period t to a treatment variable, say D_{it}, by estimating the following regression :

$$y_{i,t+h} - y_{i,t} = \alpha^{h,ex} + \beta^{h,ex} D^{ex}_{i,t+1} + X'_{i,t}\Omega^{h,ex} + \alpha^{ex}_{i} + \epsilon^{ex}_{i,t+h}, \tag{1}$$

for $h = 1, 2, 3, 4, 5, ..., T$. The term $y_{i,t+h} - y_{i,t}$ denotes the log change in the outcome variable between period t and $t+h$ in country i. I consider the real GDP growth rate, current account balance (as percentage of GDP), real and nominal exchange rate as outcome variables. $D^{ex}_{i,t}$ is a binary variable which takes value 1 if there is an extreme episode, and 0 otherwise in country i in period t. "ex" takes on values s for surges, and f for flights. X is a vector of control variables, for example lagged values of the outcome variables. I estimate the above equations separately for surges and flights using the definition of surges and flights as described in Section 2. The coefficient $\beta^{h,ex}$ captures the cumulative effect over h periods of an extreme flow on the outcome variable.

The occurrence of these extreme events in capital flows is not a result of a random experiment. It suffers from the "selection-on-observable" problem. There may be some observable components that may cause these extreme movements in net capital flows in different countries in different years. In such circumstances, it is hard to disentangle the effect of a treatment on the outcome variable. Thus, OLS estimation results are likely to be biased. In order to address this issue, I use the Inverse Probability Weighted Regression Adjusted Estimator (henceforth, IPWRA) as described in Jordà and Taylor (2013). This estimator combines the Inverse Probability Weighting Estimator of Angrist, Jordà, and Kuersteiner (2013) with the regression adjustment and the local projection method of Jordà (2005), so as to orthogonalize the treatment with respect to potential outcomes and estimate the dynamic impulse responses.

3.2 Inverse Probability Weighting Estimator

This method uses a two step procedure to address the selection-on-observable problem in the data. This is fairly common in the empirical microeconomic research arena. However, application to macro data is relatively new. In the first step, I run a regression of the treatment variable on various indicators that can be thought of as explaining it. I resort to the economic literature to select these explanatory variables. Using the inverse of the fitted value of this regression, I weight each observations in the data. Thus, the observations which were less likely to be treated but actually did receive the treatment get more weight relative to the observations which received the treatment when they were more likely to receive it. The same is true for the untreated observations.

In my analysis, the occurrence of the extreme flow, whether inflow or an outflow, can be thought of as the treatment. There is a vast literature that studies the determinants of these extreme inflows. A recent study by Ghosh et al. (2014) find that there are certain global factors ("push factors") as well as certain domestic factors ("pull factors") that explain extreme inflows. The push factors are global factors whereas the pull factors are the domestic factors for the net capital flows. The global factors that they find significant include the real interest rate for the US, change in the world commodity price, and global market volatility measured by the volatility in the S&P 500 price index.[5] Among the domestic pull factors, they find that a country's growth rate of real GDP and capital account openness as significant determinants. I compare the mean values of these macroeconomic indicators across the treated and the untreated groups.

The domestic macroeconomic variables that I consider are domestic real GDP growth rate and index for capital account openness. I use the capital account openness index from Chinn and Ito (2008) as a measure of the degree of financial openness. A higher value of the index implies country is more open. The means of these macroeconomic variables across surge and no-surge observations, and flight and no-flight observations are reported in Table 3. The upper panel of the table gives the means across surge and no-surge observations and the lower panel gives the means across flight and no-flight observations. The third row of each panel in Table 3 gives the difference between the estimated mean values of the different sub populations for surges and flights.

The upper panel of Table 3, shows that the surge and the no-surge observations have significantly different growth rates of real GDP before the surge. The country-year observations receiving surges are associated with a higher real GDP growth rate on average. Also, these periods are associated with a significantly lower mean real interest rates in the US and a higher value of commodity price growth on average. I find that the observations that are receiving extreme inflows on a net basis are more open on average than the no-surge observations. However, this difference is not statistically significant. The global market volatility is lower on average for the surge

[5]They use the Chicago Board Options Exchange (CBOE) data on VIX to measure the volatility in the S&P 500 index.

observations than the no-surge observations. Again, this difference is not statistically significant.

Turning our focus towards flights, we find the country-year observations experiencing extreme outflows, are associated with significantly lower growth rate in real GDP than those not experiencing any flights. Also they correspond to periods of significantly higher global market volatility than the no-flight observations.

Given that the means of some of the variables are significantly different between the sub-populations receiving extreme flows and the ones not receiving extreme flows, this implies that the treatment (extreme inflows) are not exogenous. There is likely to be some allocation bias. There are several ways to deal with endogeneity problems in econometrics. The most common solution is to use an instrumental variable approach. However, for this method we need some variable that is highly correlated with the extreme flows indicator variable but not correlated with the error term i.e, the error term satisfy the exclusion restriction. It is difficult to find such pure instruments. In the absence of proper instruments, the approach that can be used is the propensity score weighting approach. The objective of this method is to match the two sub populations by assigning different weights to them. The estimator proposed by Angrist, Jordà, and Kuersteiner (2013), henceforth AJK, uses this approach and applies it in a time-series environment.

The AJK-estimator involves a two step procedure. The first step involves running a regression of the treatment variable on the various explanatory variables to get the propensity score of the treatment variable ($D_{i,t}$). In particular, I run a probit model to get these propensity scores using the fitted value of the regression as described below:

$$D^*_{i,t} = \mu + \lambda X_{i,t} + \nu_{it}, \tag{2}$$

where D^*_{it} is the underlying continuous latent variable for the observed treatment variable, $D_{i,t}$ that can be interpreted as the likelihood of the occurrence of extreme flows. The observed variable, $D_{i,t}$ is a realization of an extreme flow when the latent variable is positive:

$$D_{i,t} = \begin{cases} 1 & D^*_{i,t} > 0 \\ 0 & otherwise. \end{cases}$$

X_{it} is the vector of explanatory variables for the treatment. The fitted value of Equation (2) gives the propensity scores for the treatment variable, D_{it} which are used for weighting each observation in the sample. Let $P(D_{it} = d_j | X_{it}) = p^j(X_{it})$ for

$j = 1, 0$, denote the propensity score for country i in period t with a treatment j, where $p^1(X_{it}) = 1 - p^0(X_{it})$. The AJK estimator is given by:[6]

$$\hat{\theta}^h = \frac{1}{T}\sum_{t=h+1}^{T}\frac{(y_{i,t+h} - y_{i,t})\mathbb{1}(D_{i,t} = 1)}{\hat{p}^1(X_{i,t})} - \frac{1}{T}\sum_{t=h+1}^{T}\frac{(y_{i,t+h} - y_{i,t})\mathbb{1}(D_{i,t} = 0)}{\hat{p}^0(X_{i,t})}, \quad (3)$$

for h=0, ..., H. $y_{i,t+h} - y_{i,t}$ is the difference in the values of outcome variable between period t and $t+h$. $\mathbb{1}(.)$ is an indicator function for the treatment variable, $D_{i,t}$, $\hat{p}^1(X_{i,t})$ and $\hat{p}^0(X_{i,t})$ are the estimated probabilities of treatment, $D_{i,t}$, from the probit model described in Equation (2).

The term $\frac{1}{T}\sum_{t=h+1}^{T}\frac{(y_{i,t+h}-y_{i,t})\mathbb{1}(D_{i,t}=1)}{\hat{p}^1(X_{i,t})}$ in Expression (3) gives the average effect on the outcome variable h periods after the intervention of the treatment which takes place in period t weighted by the inverse of the estimated probability of treatment conditional on country i receiving treatment in period t. The term $\frac{1}{T}\sum_{t=h+1}^{T}\frac{(y_{i,t+h}-y_{i,t})\mathbb{1}(D_{i,t}=0)}{\hat{p}^0(X_{i,t})}$ gives the average effect on the outcome variable h periods after the intervention of the treatment which takes place in period t weighted by the inverse of the estimated probability of treatment conditional on country i not receiving any treatment in period t. Thus, the method uses the estimated inverse probability of the treatment to weight each observation (country-year) in the data when calculating the mean of the outcome variable of the treated and the non-treated sample. The estimator gives the difference in the average outcome of the treated sample and the non-treated sample using the weighted observations.

Jordà and Taylor (2013) use the Inverse Probability Weighted Regression Adjusted estimator in a Local Projection framework. The regression adjustment method models the outcome variable to take into account the nonrandom assignment of the treatment whereas IPW estimation models the treatment variable. The IPWRA estimator combines the two methods by using the IPW weights to estimate the corrected regression coefficients that are used in the regression adjustment estimation. It belongs to the class of "doubly robust" estimators, which means the estimate of the treatment effect is consistent if either the treatment model or the outcome model (not both) are mis-specified.

[6] $j = 1$ indicates a treatment.

4 Results

In this section, I present the results of the LP-IPWRA estimation to find the effect of extreme net flows, both into and out of the country, using the estimation methodology mentioned in Section 3. I conduct the dynamic analysis of surges and flights separately. I first discuss the results of the baseline regression using the LP-OLS estimation as described in Expression 1.

4.1 Effect of Surges

4.1.1 LP-OLS Estimation

Results of the estimation of Expression 1 for surges on real GDP growth are presented in Table 4. The local projection for output is done for up to five years out after there is an extreme inflow in a country. Table 4 gives the estimation results without any country fixed effects on the upper panel. I also estimate the equation by including country fixed effects, the result of which are shown in bottom panel of Table 4.

Table 4 shows that the real GDP growth rate is 0.3 percentage points higher in the year when the country experiences a surge than the countries that do not experience a surge (the control group). But from the second period onwards the growth rate in the countries experiencing surges is lower than in the control group. Also, the magnitude of the effect goes up significantly. In two periods after an incidence of surge in country i, the real GDP growth is 0.02 percentage points lower than in the control group. However, after four periods the growth rate of real GDP is 2.7 percentage points lower, and after 5 years, the real GDP is 4 percentage points lower than the observations that did not receive any surge in period t. The effect of surges on real GDP is not statistically significant in the first 3 years, but becomes so from the fourth year onwards.

With the inclusion of country fixed effects in the regression, the initial effect of the surges on the real GDP growth rate becomes statistically significant and also the magnitude is a little higher. The difference between the observations receiving a surge and the ones not receiving a surge is 0.8 percentage points. But the magnitude of the cumulative effect of surges on the growth rate in the medium term is lower compared to the results without fixed effects, though it is still statistically significant after 5 years.

Table 5 presents results of the OLS estimate of effect of surges on country's current account balance in percentage of GDP in a local projection framework. Again, the

OLS estimates without fixed effects are shown in upper panel and the estimates with country fixed effects are shown in the bottom panel of the table. The surges appear to have a negative effect on the current account balance as indicated by the negative coefficients of the estimates in first row of the Table 5. The effect is stronger in the initial years after the occurrence of surge. The current account balance as percentage of GDP is 1.5 percentage points lower in the year of the occurrence of surges than had there been no surge. However, five year after the occurrence of a surge, it is 0.7 percentage of GDP higher than had there not been any surge.

The OLS estimates of the effect of surge on real exchange rate is shown in the Table 6. The real exchange rate are measured as the value of domestic goods in terms of foreign goods. So an increase in the real exchange rate implies an appreciation and vice versa. The estimated coefficients from the upper panel of the table show that the real exchange rate appreciates following an occurrence of a surge. However, the OLS estimates for the nominal exchange rates shows that there is a nominal depreciation of the currency (see first row of the Table 7).

As discussed in the Section 3, the LP-OLS estimate suffers from endogeneity issue given the non random assignment of the extreme flows across country and time. In the next section, I discuss the estimation results using the LP-IPWRA estimation.

4.1.2 LP-IPWRA Estimation

This section presents the result of the IPWRA estimation of average treatment effects of surges on country's output growth rate, current account balance, real exchange rate, and nominal exchange rate. The explanatory variables for the probit analysis, as described in the Expression 2, are obtained from the existing literature that analyzes the determinants of surges. In particular, I include real the interest rate in the US, a measure of global financial market uncertainty (the volatility in S&P 500 index), growth of world commodity prices, lagged growth rate of domestic real GDP, and index of capital account openness (the Chinn-Ito index). For the outcome model, I include a lagged value of the log change in real GDP to account for the serial correlation in the growth rate of output.

Table 8 presents the LP-IPWRA estimates for average treatment effects of the occurrence of surges on a country's output in the first row. The results indicate that even after taking into account the non random assignment of the occurrence of surges, there is a detrimental effect on the country's output growth rate in the medium term. The results are similar to the OLS results reported in Table 4. The evidence is stronger with the IPWRA estimation. The estimate of the accumulated effect after two years is now significant at the ten percent level, and the estimates after three years onwards are significant at the one percent level.

The results of the probit model are also shown in the bottom part of the Table. All the variables except the index for capital account openness are statistically significant and the coefficients have the expected signs. A higher real interest rate in the US, and a higher volatility in global markets as measured by the volatility in the S&P 500 index causes a lower probability of surges in emerging markets. There is a higher likelihood of extreme inflows in capital in emerging markets when the country's growth rate is higher, and also when the growth in world commodity prices are higher.

The effect on current account balance is negative. Table 9 reports the average treatment effects estimation results for surges on current account balance. However, compared to the OLS result the effect is weaker. The current account deficit as percentage of GDP for the observations receiving surge is now 0.6 percentage points higher than the observations not receiving any surge in the same year of occurrence of a surge.

The average treatment effect of a surge on real and nominal exchange rate using LP-IPWRA estimation are reported in tables, 10 and 11. After taking into account the allocation bias in the surge occurrence, there is no effect of surge on the real exchange rate. However, we encounter a significant appreciation of the nominal exchange rates after occurrence of a surge (See columns . The estimates are all significant at one percent level of significance. This is in contrast to the OLS results where the estimates for the real exchange rate were significant.

4.2 Effect of Flights

This section presents the effects of an extreme outflow the same macroeconomic variables as discussed in previous sections, output growth, current account balance, real and nominal exchange rates. Again, I present the results for the LP-OLS specification first in Section 4.2.1 and then discuss the LP-IPWRA estimates in Section 4.2.2

4.2.1 LP-OLS Estimation

Table 12 reports the results of estimation of effects of flight on output growth using the LP-OLS estimation. The upper panel presents the OLS results without any fixed effects while the bottom panel shows the result of OLS estimation with country fixed effects. Similar to the surge analysis, I also estimate Expression 1 for flights by incorporating country fixed effects. The results with fixed effects are presented in

Table

The results indicate that there is a detrimental effect on a country's output when the country experiences an extreme outflow of capital on a net basis. Table 12 shows that the real GDP growth rate is 1.6 percentage points lower than in the control group in the same year when there is a flight and it continues to be lower by a larger magnitude in the second and third year. The estimates are highly significant for the first three years after an occurrence of a flight. Even after controlling for the country specific time-invariant unobserved differences, the results are similar as evident from the results reported in the bottom panel of Table 12.

The average treatment effect of flight on current account balance is positive as indicated by the results in Table 13. The effect is statistically significant for the first three years after the occurrence of a flight. Tables 14 and 15 report the OLS estimation results for real and nominal exchange rates. The flight are associated an immediate depreciation in both real and nominal exchange rates.

4.2.2 LP-IPWRA Estimation

The LP-IPWRA estimates for the average treatment effect of flights of capital on its output growth rate are reported in Table 16 in the first row. The results indicate that after taking into account the non random assignment of the treatment, the effect of an extreme outflow of capital on the country's output growth is no longer statistically significant. This is an interesting result as capital flights have often been thought of as having a detrimental effect on country's growth rate.

Table 17 reports the average treatment effect of flight on current account deficits. The results show that the flights cause the current account deficits to significantly increase in the medium and long term (see Columns (3)-(4)). This is opposite to what the OLS results indicate.

The LP-IPWRA estimates for the real exchange rate as shown in Table 18 suggest that the flights cause the real exchange rate to depreciate immediately after a flight (Column 1) but in the long run there is an real appreciation of the exchange rate. However, the estimates are not statistically significant except for the last year (Column (5)). For the nominal exchange rate, however there is a significant appreciation following an occurrence of flight. This is a puzzling result, as flights which are abnormally high level of capital outflows from a country is usually expected to cause a downward pressure on the value of the currency. But it should be noted that the regression specification I consider here is a baseline one. Still there is a lot to explore to find the causality of flights on country's macroeconomic and financial indicators.

5 Comparison with Existing Methodology

In this section, I compare the estimation results for surges on countries' output using definition of surges as identified by Reinhart and Reinhart (2009), henceforth, RR surges. According to their definition, surges are periods where the capital flows are in the top 20 percentile of their country-specific distribution. Given that the data and sample of countries used in by Reinhart and Reinhart (2009), are different from the sample I consider here, I apply their definition on my sample and identify surges.[7] Applying their definition to my sample, I find there are 446 periods of surges across countries and year.

Table 20 presents the OLS estimation result of an effect of surges on countries' output using the two definitions of surges. The top panel reports the results using definition of surges based on Markov switching model, henceforth, MS surges, and the bottom panel reports the results for RR surges. The Table shows that the RR surges have a significant positive effect on the real GDP growth rate in the first two years after a surge. The effect is negative after five years of occurrence of a surge, however, the estimate is not statistically significant. This is in contrast to the results encountered for the MS surges. Allowing for country fixed effects, the effect of RR surges is negative and significant on output growth rate in the long term (fourth year onwards) as indicated by the figures in the bottom panel of the Table 21. However, the effect is weaker in comparison with the MS surges' results. For the MS surges, there is a significant negative effect from the second year onwards after a surge, and the estimates are higher level of significance.

Next, I compare the results of the IPWRA estimates using the two definitions of surges. Table 22 presents the results of the IPWRA estimation. The top panel presents the results for MS surges and the bottom panel for RR surges. Again, we encounter that the RR surges have a weaker effect on real GDP growth rate than the surges identified using MS model. The point estimates for the RR surges are smaller than the MS surges for the last three years. Five years out after a surge, the output is 3.6 percentage points lower than if there were no surge for MS surges, however, for RR surges, output is 2.7 percentage points lower.

In sum, the results suggest that the surges have a contractionary effect on output. The RR surges have a weaker effect on output than the MS surges.

[7] Since, the surges using Markov switching model were based on quarterly data of surges, and then converted to an annual frequency (see Section 2), I also do the same for the methodology for RR. I identify the periods of surges based on quarterly data and then convert them into annual frequency in the similar way I do for the surges identified by Markov switching model.

6 Conclusion

Effect of extreme movements in capital flows on output in emerging market economies is still an unresolved debate. I revisit this question, by analyzing the effect of surges (extreme net inflows) and flights (extreme net outflows) on output for a sample 36 emerging market economies using a novel definition for these extreme flows and also a novel estimation method for conducting causal analysis. In particular, I use definitions of surges and flights based on a statistical model and propensity score method of estimation in a time series setting to deal with potential selection-on-observables problem in observational data.

The evidence presented in this paper, suggests that surges in net capital flows have a contractionary effect on countries'' output in the medium term. Effects of surges where surges are identified using threshold methodology used in the literature are relatively underestimated than the surges defined using a statistical model. However, for flights there is no robust evidence for having any statistically signficant effect on output, though the point estimates are found to be negative implying a contractionary effect on output.

The findings in this paper contribute to the debate of costs and benfits of imposing capital controls for emerging markets. The IMF now acknowledges that under certain conditions capital controls may be desirable for emrging marktes (see (IMF Executive Summary Report, 2012)). When a country faces an exceptionally high levels of capital inflows, imposing some restrictions on the cross-border captal inflows may be beneficial for country's growth in the future.

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Table 1: Annual Surge and Flights Summary

	Flight		
Surge	No Flight	Flight	Total
	No.	No.	No.
No Surge	718	58	776
Surge	156	15	171
Total	874	73	947

Notes: The table reports number of surges and flights at an annual frequency.

Table 2: Annual Surges and Flights by Country

country	N	Sum	
	nci lgdp pc	Surge countryyear	Flight countryyear
Albania	20	11	0
Argentina	35	1	4
Bangladesh	34	5	12
Belarus	19	10	0
Brazil	35	1	0
Chile	24	7	2
Colombia	19	2	0
CzechRepublic	20	1	0
Ecuador	22	0	1
ElSalvador	16	3	3
Guatemala	35	6	1
Hungary	26	12	2
India	35	2	0
Indonesia	34	0	5
Israel	35	9	5
Korea	35	0	2
Latvia	21	4	2
Lithuania	19	4	0
Mexico	35	7	2
Morocco	11	5	0
Myanmar	17	1	0
Nicaragua	23	10	2
Pakistan	35	5	2
Paraguay	13	3	1
Peru	23	5	0
Philippines	35	4	1
Poland	30	0	1
Romania	24	3	0
Russia	21	0	2
SouthAfrica	35	11	2
SriLanka	35	19	3
Thailand	35	2	3
Turkey	31	9	2
Ukraine	21	5	3
Venezuela	20	2	10
Vietnam	19	2	0
Total	947	171	73

Notes : The Table reports the total number of surges and flights for the different countries in the sample at an annual level.

Table 3: Mean comparison between Sub-Populations with Extreme and No Extreme Net Capital Flows

Surge:

Variables	Real GDP Growth Rate	Capital Account Openness Index	Real US Interest Rate	World Commodity Price Index Growth	S&P 500 Index Volatility
Mean (Surge)	4.737	0.463	0.325	0.040	20.348
Mean (No Surge)	3.709	0.427	0.815	-0.013	20.969
Difference	1.028**	0.036	-0.490**	0.053***	-0.621
p-value	0.003	0.213	0.006	0.000	0.332

*** p<0.01, ** p<0.05, * p<0.1

Flight:

Variables	Real GDP Growth Rate	Capital Account Openness	Real US Interest Rate	World Commodity Price Index Growth	S&P 500 Index Volatility
Mean (Flight)	2.146	0.408	0.674	-0.022	23.039
Mean (No Flight)	4.046	0.436	0.731	-0.002	20.662***
Difference	-1.899***	-0.027	-0.056	-0.020	2.378**
p-value	0.000	0.506	0.825	0.367	0.010

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports means of various macroeconomic variables, real GDP growth rate, capital account openness index (Chin-Ito Index), US real interest rate (indicator of advanced economy interest rate), growth in world commodity price index, and global volatility measured by volatility of S&P 500 index (VIX) for a sample of 36 emerging markets for the period 1980-2014 across surge and no-surge observations in the upper panel, and across flight and no-flight observations in the lower panel. The third row in both panel gives the difference between the means of surge and no-surge observations.

Table 4: Effect of Surges on Real GDP Growth: LP-OLS estimates

VARIABLES	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
Surge (t+1)	0.314	-0.023	-1.232	-2.663***	-4.020***
	(0.406)	(0.972)	(0.141)	(0.008)	(0.001)
Real GDP Growth(t)	0.452***	0.620***	0.768***	0.858***	0.878***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	2.005***	5.456***	9.191***	13.188***	17.502***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	702	702	702	702	702
R-squared	0.188	0.128	0.115	0.103	0.088
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

VARIABLES	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
Surge (t+1)	-0.248	-1.303*	-2.665***	-3.790***	-4.226***
	(0.542)	(0.050)	(0.001)	(0.000)	(0.000)
Real GDP Growth (t)	0.349***	0.366***	0.367***	0.299***	0.149
	(0.000)	(0.000)	(0.000)	(0.002)	(0.158)
Constant	2.533***	6.736***	11.110***	15.713***	20.568***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	702	702	702	702	702
R-squared	0.103	0.047	0.039	0.032	0.024
Number of WEOCountryCode	36	36	36	36	36
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

pval in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports the OLS estimation results of a regression of log change in real GDP for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the real GDP growth. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 5: Effect of Surges on Current Account Balance: LP-OLS estimates

	(1)	(2)	(3)	(4)	(5)
VARIABLES	CA Balance (t+1)	CA Balance (t+2)	CA Balance (t+3)	CA Balance (t+4)	CA Balance (t+5)
Surge (t+1)	-1.496***	-1.770***	-1.420***	-0.776*	-0.772*
	(0.000)	(0.000)	(0.000)	(0.063)	(0.070)
CA Balance (t)	0.760***	-0.406***	-0.480***	-0.530***	-0.561***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.189	-0.418***	-0.557***	-0.769***	-0.796***
	(0.141)	(0.010)	(0.001)	(0.000)	(0.000)
Observations	738	738	738	738	738
R-squared	0.646	0.223	0.263	0.286	0.301
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

	(1)	(2)	(3)	(4)	(5)
VARIABLES	CA Balance (t+1)	CA Balance (t+2)	CA Balance (t+3)	CA Balance (t+4)	CA Balance (t+5)
Surge (t+1)	-0.825***	-0.806**	-0.021	-0.049	-0.327
	(0.009)	(0.030)	(0.955)	(0.896)	(0.378)
CA Balance (t)	0.552***	0.234***	0.112***	0.002	-0.052
	(0.000)	(0.000)	(0.002)	(0.966)	(0.158)
Constant	-0.805***	-1.448***	-1.776***	-2.012***	-2.044***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	738	738	738	738	738
R-squared	0.343	0.074	0.014	0.000	0.003
Number of WEOCountryCode	36	36	36	36	36
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

pval in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports the OLS estimation results of a regression of current account balance in percentage of GDP for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the current account balance in percentage of GDP. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 6: Effect of Surges on Real Exchange Rate: LP-OLS estimates

VARIABLES	(1) Real Exchange Rate (t+1)	(2) Real Exchange Rate (t+2)	(3) Real Exchange Rate (t+3)	(4) Real Exchange Rate (t+4)	(5) Real Exchange Rate (t+5)
Surge (t+1)	-3.354*	-5.805**	-4.751*	-4.096	-4.606
	(0.063)	(0.015)	(0.093)	(0.251)	(0.273)
Real Exchange	-0.098***	-0.107**	-0.050	-0.033	-0.102
Rate (t+1)	(0.010)	(0.032)	(0.401)	(0.662)	(0.244)
Constant	-0.060	-0.662	-1.473	-2.468	-2.908
	(0.937)	(0.514)	(0.220)	(0.104)	(0.104)
Observations	672	672	672	672	672
R-squared	0.014	0.015	0.005	0.002	0.004
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

VARIABLES	(1) Real Exchange Rate (t+1)	(2) Real Exchange Rate (t+2)	(3) Real Exchange Rate (t+3)	(4) Real Exchange Rate (t+4)	(5) Real Exchange Rate (t+5)
Surge (t+1)	-1.243	-0.065	1.560	2.009	2.470
	(0.527)	(0.980)	(0.601)	(0.603)	(0.585)
Real Exchange	-0.135***	-0.172***	-0.139**	-0.099	-0.147*
Rate (t)	(0.001)	(0.001)	(0.018)	(0.191)	(0.100)
Constant	-0.458	-1.726*	-2.647**	-3.596**	-4.204**
	(0.558)	(0.089)	(0.026)	(0.020)	(0.020)
Observations	672	672	672	672	672
R-squared	0.019	0.018	0.009	0.003	0.005
Number of WEOCountryCode	35	35	35	35	35
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

pval in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports the OLS estimation results of a regression of log change in real exchange rate (domestic goods in terms of foreign goods) for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the log change in real exchange rate.

Table 7: Effect of Surges on Nominal Exchange Rate: LP-OLS estimates

	(1) Nominal Exchange Rate (t+1)	(2) Nominal Exchange Rate (t+2)	(3) Nominal Exchange Rate (t+3)	(4) Nominal Exchange Rate (t+4)	(5) Nominal Exchange Rate (t+5)
Surge (t+1)	-3.501	-7.964	-10.008	-12.083	-15.340
	(0.272)	(0.164)	(0.218)	(0.241)	(0.214)
Nominal Exchange Rate (t)	0.649***	1.162***	1.593***	1.986***	2.335***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	4.791***	10.311***	16.039***	21.009***	26.095***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	687	687	687	687	687
R-squared	0.434	0.434	0.416	0.408	0.399
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

	(1) Nominal Exchange Rate (t+1)	(2) Nominal Exchange Rate (t+2)	(3) Nominal Exchange Rate (t+3)	(4) Nominal Exchange Rate (t+4)	(5) Nominal Exchange Rate (t+5)
Surge (t+1)	-0.941	0.628	2.280	1.676	0.799
	(0.784)	(0.917)	(0.788)	(0.875)	(0.950)
Nominal Exchange Rate (t)	0.548***	0.937***	1.234***	1.513***	1.752***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	5.926***	12.334***	19.527***	26.037***	32.426***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	687	687	687	687	687
R-squared	0.300	0.287	0.262	0.253	0.244
Number of WEOCountryCode	35	35	35	35	35
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

pval in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Notes: The table reports the OLS estimation results of a regression of log change in nominal exchange rate (domestic currency per foreign currency (US dollars)) for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the log change in nominal exchange rate. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 8: Effect of Surge on Real GDP Growth: LP-IPWRA estimates

	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
ATE					
Surge (t+1)	-0.084	-0.828*	-2.051***	-3.219***	-3.644***
	(0.78)	(0.09)	(0.00)	(0.00)	(0.00)
Potential Outcome mean					
No Surge	4.225***	8.600***	13.034***	17.386***	21.574***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Surge	4.141***	7.772***	10.983***	14.167***	17.931***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Probit Results					
TME1					
Real US Interest Rate	-0.067*	-0.067*	-0.067*	-0.067*	-0.067*
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
S&P Volatility	-0.013*	-0.013*	-0.013*	-0.013*	-0.013*
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
World Commodity Price Growth	1.602***	1.602***	1.602***	1.602***	1.602***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Lag Real GDP Growth	0.053***	0.053***	0.053***	0.053***	0.053***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Capital Account Openness	0.040	0.040	0.040	0.040	0.040
	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Constant	-0.733***	-0.733***	-0.733***	-0.733***	-0.733***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	607	607	607	607	607

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of log change in real GDP for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the real GDP growth.

Table 9: Effect of Surge on Current Account Balance: LP-IPWRA estimates

	(1) CA Balance (t+1)	(2) CA Balance (t+2)	(3) CA Balance (t+3)	(4) CA Balance (t+4)	(5) CA Balance (t+5)
ATE					
Surge	-0.636**	-1.024***	-0.426	-0.628*	-0.680
	(0.03)	(0.00)	(0.28)	(0.09)	(0.13)
POmean					
No Surge	-1.939***	-1.968***	-2.124***	-2.095***	-2.034***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Surge	-2.576***	-2.992***	-2.551***	-2.723***	-2.714***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	607	607	607	607	607

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of current account balance in percentage of GDP for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the current account balance in percentage of GDP. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 10: Effect of Surge on Real Exchange Rate: LP-IPWRA estimates

	(1) Real Exchange Rate (t+1)	(2) Real Exchange Rate (t+2)	(3) Real Exchange Rate (t+3)	(4) Real Exchange Rate (t+4)	(5) Real Exchange Rate (t+5)
ATE					
Surge	-1.344	0.678	0.637	-1.502	-3.674
	(0.35)	(0.81)	(0.80)	(0.61)	(0.26)
POmean					
No Surge	-0.836	-2.527**	-4.269***	-4.622**	-4.142*
	(0.33)	(0.02)	(0.00)	(0.01)	(0.09)
Surge	-2.180*	-1.849	-3.632	-6.124**	-7.816***
	(0.06)	(0.49)	(0.11)	(0.01)	(0.00)
[1em] Observations	589	589	589	589	589

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of log change in nominal exchange rate (domestic goods in terms of foreign goods) for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the log change in real exchange rate.

Table 11: Effect of Surge on Nominal Exchange Rate: LP-IPWRA estimates

	(1) Nominal Exchange Rate (t+1)	(2) Nominal Exchange Rate (t+2)	(3) Nominal Exchange Rate (t+3)	(4) Nominal Exchange Rate (t+4)	(5) Nominal Exchange Rate (t+5)
ATE					
Surge	-7.281***	-11.880***	-17.303***	-24.129***	-28.794***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
POmean					
No Surge	12.194***	22.711***	32.037***	40.985***	49.291***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Surge	4.913***	10.831***	14.734***	16.856***	20.497***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	593	593	593	593	593

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of log change in nominal exchange rate (domestic currency per foreign currency (US dollars)) for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the log change in nominal exchange rate.

Table 12: Effect of Flight on Real GDP Growth: LP-OLS estimates

VARIABLES	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
Flight (t+1),	-1.632***	-3.274***	-2.898***	-2.732**	-2.724*
	(0.001)	(0.000)	(0.008)	(0.040)	(0.075)
Real GDP Growth(t)	0.448***	0.601***	0.734***	0.804***	0.803***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	2.225***	5.822***	9.378***	13.193***	17.352***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	702	702	702	702	702
R-squared	0.200	0.147	0.121	0.099	0.077
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

VARIABLES	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
Flights (t+1),	-1.781***	-3.499***	-2.916***	-2.664**	-2.636*
	(0.521)	(0.849)	(1.079)	(1.260)	(1.397)
Real GDP Growth(t)	0.337***	0.330***	0.315***	0.231**	0.075
	(0.039)	(0.064)	(0.081)	(0.095)	(0.105)
Constant	2.700***	6.971***	11.127***	15.575***	20.378***
	(0.222)	(0.362)	(0.460)	(0.537)	(0.596)
Observations	702	702	702	702	702
R-squared	0.118	0.065	0.034	0.016	0.006
Number of WEOCountryCode	36	36	36	36	36
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports the OLS estimation results of a regression of log change in real GDP for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a flight or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a flight for the real GDP growth. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 13: Effect of Flight on Current Account Balance: LP-OLS estimates

VARIABLES	(1) CA Balance (t+1)	(2) CA Balance (t+2)	(3) CA Balance (t+3)	(4) CA Balance (t+4)	(5) CA Balance (t+5)
Flight (t+1),	1.853***	2.121***	1.281**	0.743	0.194
	(0.000)	(0.000)	(0.032)	(0.237)	(0.765)
CA Balance (t)	-0.099**	-0.324***	-0.335***	-0.381***	-0.389***
	(0.012)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.005	0.099	0.195	0.278	0.336*
	(0.970)	(0.544)	(0.274)	(0.137)	(0.083)
Observations	702	702	702	702	702
R-squared	0.033	0.066	0.051	0.056	0.055
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

VARIABLES	(1) CA Balance (t+1)	(2) CA Balance (t+2)	(3) CA Balance (t+3)	(4) CA Balance (t+4)	(5) CA Balance (t+5)
Flight (t+1),	2.098***	2.465***	1.439**	0.717	0.099
	(0.455)	(0.593)	(0.642)	(0.668)	(0.683)
CA Balance (t)	-0.109***	-0.345***	-0.361***	-0.410***	-0.418***
	(0.041)	(0.053)	(0.057)	(0.060)	(0.061)
Constant	-0.027	0.068	0.180	0.279	0.343*
	(0.128)	(0.166)	(0.180)	(0.187)	(0.192)
Observations	702	702	702	702	702
R-squared	0.038	0.075	0.059	0.066	0.067
Number of WEOCountryCode	36	36	36	36	36
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports the OLS estimation results of a regression of current account balance in percentage of GDP for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a flight or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a flight for the current account balance in percentage of GDP. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 14: Effect of Flight on Real Exchange Rate: LP-OLS estimates

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Real Exchange Rate (t+1)	Real Exchange Rate (t+2)	Real Exchange Rate (t+3)	Real Exchange Rate (t+4)	Real Exchange Rate (t+5)
Flight (t+1)	9.101***	7.315**	4.754	3.945	1.823
	(0.000)	(0.022)	(0.210)	(0.409)	(0.746)
Real Exchang	-0.098***	-0.103**	-0.045	-0.029	-0.097
Rate (t)	(0.009)	(0.039)	(0.441)	(0.698)	(0.271)
Constant	-1.495**	-2.378**	-2.766**	-3.569**	-3.908**
	(0.038)	(0.014)	(0.016)	(0.013)	(0.022)
Observations	672	672	672	672	672
R-squared	0.030	0.014	0.003	0.001	0.002
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Real Exchange Rate (t+1)	Real Exchange Rate (t+2)	Real Exchange Rate (t+3)	Real Exchange Rate (t+4)	Real Exchange Rate (t+5)
Flights (t+1)	10.767***	8.859***	5.642	5.180	3.330
	(2.562)	(3.354)	(3.929)	(5.105)	(5.981)
Real Exchange	-0.142***	-0.178***	-0.144**	-0.104	-0.150*
Rate (t)	(0.038)	(0.050)	(0.058)	(0.076)	(0.089)
Constant	-1.661**	-2.544***	-2.880***	-3.706**	-4.063**
	(0.726)	(0.950)	(1.113)	(1.446)	(1.694)
Observations	672	672	672	672	672
R-squared	0.045	0.029	0.012	0.004	0.005
Number of WEOCountryCode	35	35	35	35	35
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports the OLS estimation results of a regression of log change in real exchange rate (domestic goods in terms of foreign goods) for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a surge or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the log change in real exchange rate. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 15: Effect of Flights on Nominal Exchange Rate: LP-OLS estimates

VARIABLES	(1) Nominal Exchange Rate (t+1)	(2) Nominal Exchange Rate (t+2)	(3) Nominal Exchange Rate (t+3)	(4) Nominal Exchange Rate (t+4)	(5) Nominal Exchange Rate (t+5)
Flight (t+1)	10.984***	8.399	1.509	-2.411	-5.490
	(0.010)	(0.270)	(0.889)	(0.861)	(0.738)
Nominal Exchange	0.651***	1.169***	1.602***	1.997***	2.349***
Rate (t)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	3.132**	8.022***	13.972***	18.893***	23.625***
	(0.020)	(0.001)	(0.000)	(0.000)	(0.000)
Observations	687	687	687	687	687
R-squared	0.438	0.434	0.414	0.407	0.398
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

VARIABLES	(1) Nominal Exchange Rate (t+1)	(2) Nominal Exchange Rate (t+2)	(3) Nominal Exchange Rate (t+3)	(4) Nominal Exchange Rate (t+4)	(5) Nominal Exchange Rate (t+5)
Flights (t+1),	13.518***	11.693	4.640	1.756	-0.112
	(4.486)	(7.942)	(11.165)	(14.018)	(16.624)
Nominal Exchange	0.546***	0.935***	1.232***	1.511***	1.752***
Rate (t)	(0.033)	(0.058)	(0.081)	(0.102)	(0.121)
Constant	4.563***	11.421***	19.541***	26.193***	32.584***
	(1.367)	(2.420)	(3.402)	(4.271)	(5.066)
Observations	687	687	687	687	687
R-squared	0.309	0.290	0.262	0.253	0.244
Number of WEOCountryCode	35	35	35	35	35
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports the OLS estimation results of a regression of log change in nominal exchange rate (domestic currency per foreign currency (US dollars)) for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a fight or not, using a local projection framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a flight for the log change in nominal exchange rate. Upper panel of the table shows results without any fixed effects, whereas the bottom panel includes country fixed effects.

Table 16: Effect of Flight on Real GDP Growth: LP-IPWRA estimates

	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
ATE					
Flight	-0.884	-0.421	-0.076	-0.184	-1.035
	(0.15)	(0.61)	(0.94)	(0.87)	(0.47)
POmean					
No Flight	4.221***	8.344***	12.487***	16.607***	20.756***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Flight	3.337***	7.923***	12.412***	16.423***	19.721***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
[1em] Observations	607	607	607	607	607

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of log change in real GDP for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a flight in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a flight for the real GDP growth.

Table 17: Effect of Flight on Current Account Balance: LP-IPWRA estimates

	(1) CA Balance (t+1)	(2) CA Balance (t+2)	(3) CA Balance (t+3)	(4) CA Balance (t+4)	(5) CA Balance (t+5)
ATE					
Flight	-0.303	-0.888	-1.428**	-2.092***	-2.448***
	(0.63)	(0.18)	(0.05)	(0.01)	(0.00)
POmean					
No Flight	0.100	0.148	0.185	0.228	0.243
	(0.42)	(0.39)	(0.32)	(0.25)	(0.24)
Flight	-0.203	-0.739	-1.243*	-1.865**	-2.205***
	(0.75)	(0.25)	(0.08)	(0.01)	(0.00)
Observations	607	607	607	607	607

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of current account balance in percentage of GDP for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a surge in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a flight for the current account balance in percentage of GDP.

Table 18: Effect of Flight on Real Exchange Rate: LP-IPWRA estimates

	(1)	(2)	(3)	(4)	(5)
	Real Exchange Rate (t+1)	Real Exchange Rate (t+2)	Real Exchange Rate (t+3)	Real Exchange Rate (t+4)	Real Exchange Rate (t+5)
ATE					
Flight	1.066	-3.620	-6.528	-8.178	-10.553**
	(0.80)	(0.41)	(0.15)	(0.11)	(0.04)
POmean					
No Flight	-1.210**	-2.252**	-3.665***	-4.389***	-4.512**
	(0.04)	(0.02)	(0.00)	(0.00)	(0.01)
Flight	-0.144	-5.872	-10.193**	-12.568**	-15.064***
	(0.97)	(0.18)	(0.02)	(0.01)	(0.00)
[1em] Observations	589	589	589	589	589

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of log change in nominal exchange rate (domestic goods in terms of foreign goods) for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a surge in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the log change in real exchange rate.

Table 19: Effect of Flight on Real Exchange Rate: LP-IPWRA estimates

	(1) Nominal Exchange Rate (t+1)	(2) Nominal Exchange Rate (t+2)	(3) Nominal Exchange Rate (t+3)	(4) Nominal Exchange Rate (t+4)	(5) Nominal Exchange Rate (t+5)
ATE					
Flight	-5.437	-15.170***	-20.262***	-23.000***	-25.954***
	(0.19)	(0.00)	(0.00)	(0.00)	(0.00)
POmean					
No Flight	12.456***	24.118***	34.144***	42.900***	50.729***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Flight	7.019*	8.948**	13.883***	19.901***	24.775***
	(0.06)	(0.04)	(0.00)	(0.00)	(0.00)
Observations	593	593	593	593	593

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of log change in nominal exchange rate (domestic currency per foreign currency (US dollars)) for country i in year t on a binary variable, $D^f_{i,t}$ indicating if there is a flight in capital flows or not, using a local projection (LP) framework. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a flight for the log change in nominal exchange rate.

Table 20: Effect of Surges on Real GDP Growth: LP-OLS estimates

VARIABLES	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
Surge (MS)	0.314	-0.023	-1.232	-2.663***	-4.020***
	(0.406)	(0.972)	(0.141)	(0.008)	(0.001)
Real GDP Growth(t)	0.452***	0.620***	0.768***	0.858***	0.878***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	2.005***	5.456***	9.191***	13.188***	17.502***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	702	702	702	702	702
R-squared	0.188	0.128	0.115	0.103	0.088
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

VARIABLES	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
Surge (Top 20 percentile)	1.035***	0.896*	0.429	0.102	-0.928
	(0.000)	(0.068)	(0.504)	(0.895)	(0.298)
Real GDP Growth(t)	0.433***	0.598***	0.740***	0.817***	0.840***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	1.667***	5.130***	8.896***	12.848***	17.380***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	702	702	702	702	702
R-squared	0.202	0.132	0.113	0.094	0.074
Country FE	NO	NO	NO	NO	NO
Year FE	NO	NO	NO	NO	NO

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports the OLS estimation results of a regression of log change in real GDP for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge or not, using a local projection framework. The top panel reports the results where surges are identified using a three state Markov switching model using absolute values of the net capital flows. The bottom panel reports the results where surges are identified by Reinhart and Reinhart (2009). According to their criterion, a surge for a country is defined as the period in which the net capital flow lies in the top 20 percentile of the country's own net flow distribution.Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the real GDP growth.

Table 21: Effect of Surges on Real GDP Growth: LP-OLS estimates with Fixed Effects

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Real GDP (t+1)	Real GDP (t+2)	Real GDP (t+3)	Real GDP (t+4)	Real GDP (t+5)
Surge (MS)	-0.248	-1.303*	-2.665***	-3.790***	-4.226***
	(0.542)	(0.050)	(0.001)	(0.000)	(0.000)
Real GDP Growth(t)	0.349***	0.366***	0.367***	0.299***	0.149
	(0.000)	(0.000)	(0.000)	(0.002)	(0.158)
Constant	2.533***	6.736***	11.110***	15.713***	20.568***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	702	702	702	702	702
R-squared	0.103	0.047	0.039	0.032	0.024
Number of WEOCountryCode	36	36	36	36	36
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Real GDP (t+1)	Real GDP (t+2)	Real GDP (t+3)	Real GDP (t+4)	Real GDP (t+5)
Surge (Top 20 percentile)	-0.343	-0.620	-0.703	-1.469**	-1.859**
	(0.248)	(0.201)	(0.251)	(0.039)	(0.019)
Real GDP Growth(t)	0.357***	0.367***	0.351***	0.291***	0.148
	(0.000)	(0.000)	(0.000)	(0.003)	(0.171)
Constant	2.616***	6.789***	11.035***	15.759***	20.691***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	702	702	702	702	702
R-squared	0.105	0.044	0.026	0.016	0.009
Number of WEOCountryCode	36	36	36	36	36
Country FE	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	NO

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes : The table reports the OLS estimation results of a regression of real GDP growth rate for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge or not, using a local projection framework. The top panel reports the results where surges are identified using a three state Markov switching model using absolute values of the net capital flows. The bottom panel reports the results where surges are identified by Reinhart and Reinhart (2009). According to their criterion, a surge for a country is defined as the period in which the net capital flow lies in the top 20 percentile of the country's own net flow distribution. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the real GDP growth.

Table 22: Effect of Surge on Real GDP Growth: LP-IPWRA estimates

	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
ATE					
Surge (MS)	-0.084	-0.828*	-2.051***	-3.219***	-3.644***
	(0.30)	(0.49)	(0.67)	(0.81)	(0.93)
Surge (RR)	-0.504	-1.094**	-1.454**	-2.317***	-2.743***
	(0.32)	(0.53)	(0.66)	(0.79)	(0.89)
Observations	607	607	607	607	607

	(1) Real GDP (t+1)	(2) Real GDP (t+2)	(3) Real GDP (t+3)	(4) Real GDP (t+4)	(5) Real GDP (t+5)
ATE					
Surge (Top 20 percentile)	-0.504	-1.094**	-1.454**	-2.317***	-2.743***
	(0.12)	(0.04)	(0.03)	(0.00)	(0.00)
Observations	607	607	607	607	607

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports the Inverse Probability Weighting Regression Adjustment Estimator (IPWRA) estimation results of a regression of log change in real GDP for country i in year t on a binary variable, $D^s_{i,t}$ indicating if there is a surge in capital flows or not, using a local projection (LP) framework. The top panel reports the results where surges are identified using a three state Markov switching model using absolute values of the net capital flows. The bottom panel reports the results where surges are identified by Reinhart and Reinhart (2009). According to their criterion, a surge for a country is defined as the period in which the net capital flow lies in the top 20 percentile of the country's own net flow distribution. Columns (1)-(5) report the local projection for 1 to 5 years out respectively since the occurrence of a surge for the real GDP growth.

Appendices

Appendix A Data

I use quarterly data on net private capital flows for a sample of 36 emerging market economies. The choice of the countries is restricted mostly by availability and quality of the data. Net private capital flows is the difference between net foreign assets and net liabilities of the domestic private sector. The accounting method followed by IMF reports the inflows and outflows from the perspective of the residency of the asset. I compute the net private capital flows series using net financial account excluding government liabilities from the IMF's Balance of Payment Statistics which is similar to the definition followed by Ghosh et al. (2014). Table A1 provides the descriptions and sources of the different data series.

In 2009, the IMF released the sixth edition of its Balance of Payments and International Investment Position Manual (BPM6), replacing the fifth edition (BPM5), which was in place since 1993. So in order to have a consistent net capital flow series for the entire sample period, 1980 to 2014, we map the data under BPM6 with BPM5 using the different series under the two methodologies. using the "BPM5-to-BPM6 Conversion Matrix" published by IMF. In BPM6 the signs of inflows and outflows are reversed. I change the sign convention of flows under BPM6 methodology to match the BPM5 convention.

The data period considered for the analysis starts from the first quarter of 1980 to the second quarter of 2014 for most of the countries in the sample. For some countries, however, the data was not available for the entire sample period. The data period considered for each country is also provided in Table A2. For example for most of the East European countries in the sample, the data starts in the 1990s.

I control for the size of the economy by taking the net flows as percentage of country's nominal GDP as for larger economies a large flow may not be a much of concern relative to a small economy as they may be better in absorbing them. Nominal GDP data is available only at an annual level for most of the countries in the sample for the entire period of study. The data is obtained from the IMF's World Economic Outlook database. For scaling the quarterly capital flows series, the quarterly nominal GDP data is obtained by interpolating the annual GDP series. In particular, I use quadratic interpolation to interpolate quarterly data from the annual GDP data.

Table A1: Variables Definitions and Data Sources

Variables	Description	Source
Net capital flows	Net financial account excluding other investment liabilities in billions of U.S. dollar (difference between BOP series codes: "...4995W.9" and "...4753ZB9" for BPM5 presentation & ".30999FNAA" and "...3DY00SLGA" for BPM6 presentation	IMF's BOP database
Nominal GDP	In billions of U.S. Dollar	IMF's World Economic Outlook Database (Version: Oct 2014)

Table A2: Data Period by Country

Country	Start Date	End Date
Albania	1995:Q1	2014:Q2
Argentina	1980:Q1	2014:Q2
Bangladesh	1980:Q1	2013:Q4
Belarus	1996:Q1	2014:Q2
Brazil	1980:Q1	2014:Q2
Chile	1991:Q1	2014:Q2
Colombia	1996:Q1	2014:Q2
Czech Republic	1993:Q1	2014:Q2
Ecuador	1993:Q1	2014:Q1
El Salvador	1999:Q1	2014:Q2
Guatemala	1980:Q1	2014:Q2
Hungary	1989:Q1	2014:Q2
India	1980:Q1	2014:Q1
Indonesia	1981:Q1	2014:Q2
Israel	1980:Q1	2014:Q2
Korea	1980:Q1	2014:Q2
Latvia	1993:Q1	2013:Q4
Lithuania	1993:Q1	2013:Q4
Mexico	1980:Q1	2014:Q2
Morocco	2003:Q1	2013:Q3
Myanmar	1998:Q2	2014:Q1
Nicaragua	1992:Q1	2014:Q2
Pakistan	1980:Q1	2014:Q1
Paraguay	2001:Q1	2013:Q4
Peru	1990:Q1	2013:Q4
Philippines	1980:Q1	2014:Q2
Poland	1985:Q1	2014:Q1
Romania	1991:Q1	2014:Q2
Russia	1994:Q1	2014:Q2
South Africa	1980:Q1	2014:Q2
Sri Lanka	1980:Q1	2014:Q2
Thailand	1980:Q1	2014:Q1
Turkey	1984:Q1	2014:Q2
Ukraine	1994:Q2	2014:Q2
Venezuela	1994:Q1	2013:Q3
Vietnam	1996:Q1	2014:Q1