SUDDEN STOPS AND THE SOURCE OF FINANCING: EVIDENCE FROM INDUSTRY LEVEL DATA

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Sudden stops and the source of financing: evidence from industry level data.

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Abstract

This paper investigates the effect of capital flows shocks such as Sudden Stops on industry level data and how the different sources of external finance can imply different outcomes.

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1 Introduction

Financial development over the last decades has led to a revolution in how firms finance their operations now-a-days. Firms are no longer limited to their own resources or those of their owners, not even to those resources in their own country. With the increase in capital flows and the firms that rely on them, the impact of a sudden drop on these flows could lead to an unprecedented drop on their productivity.

There are countless studies analyzing and quantifying the effect of these kinds of episodes, but most of them focus on macro-aggregated level data. Calvo 1998 studies some of the effects of Sudden Stops (a negative swing in the capital inflows received by an economy) which includes bankruptcy, human capital reduction and closure of local credit channels. Moreover, Calvo,Izquierdo and Mejia 2004 finds these episodes have a higher impact in Emerging Markets (as a result of its additional effect on the exchange rates), where the financial openness is a key factor in the probability of the occurrence of a Sudden Stop.

Cavallo and Frankel 2008, however, find that it is the size of international trade which affects the probability of occurrence, rather than if countries are developed or not. Köhler-Geib 2006 argue that the most relevant factors preceding a Sudden Stop comes not from a country macroeconomic characteristic but rather from the uncertainty of the private investors. In this paper, we will not focus on the probability of occurrence of these episodes, but on the impact of them on the industrial outcome (Also, our analysis will not be limited to solely these episodes).

Following that last point, Forbes and Warnock 2012 using a new approach for capital flows shocks conclude that, with or without capital controls, these kinds of episodes always have a large significant effect on the domestic economy. Similarly, Edwards 2004 finds that the financial openness doesn't have a significant influence on the contractions produce by these kind of episodes. In this study we will work under the assumption that capital flows reversals are not limited to emerging or open economies, but rather we will leave open the possibility that the channels through which these crises affect the economy are not the same.

Sadly, most of the discussion surrounding the implications of these kind of episodes and, more interesting, the channels how they restrict the financial flows are limited to macro-aggregated level data. The first approach from an industry level analysis is found in Rajan and Zingales 1996, who using industry level data from the US discovered that industries which have higher requirements of external finance develop faster in more developed markets. Most recently, Cowan and Raddatz 2012, using a dynamic approach, realized that these episodes have higher influences in industries that are more dependant on external financial resources because of the rise capital costs in the domestic economy (where the inverse correlation between cost of capital and productivity has been quite well documented since Modigliani and Miller 1958).

In this study we aim to extend the Cowan and Raddatz 2012 basic model by opening the external finance variable, identifying between funds from shareholders or from external investors (financial debt, like banks loans or bonds). According to classic capital-cost theory (Fazzari and Hubbard 1988; Myers and Majluf 1984), a firm will always prefer to use internal

financing and they will only include external funds if it is deemed insufficient, but which kind of financial instrument they will prefer is not completely evident. Campello and Giambona 2010 for example, document how productive assets specificity and tangibility (which could be considered industry-specifics) determine the leverage. On the other hand, Anderson and Reeb 2003 state that the leverage is predetermined by the ownership composition of the firm's equity rather than the firms characteristics.

Rajan and Zingales 1996 primarily establish that "younger" companies have different external finance requirements, therefore, if an industry has a greater share of mature companies than another, they will have different external funding requirements and consequently, different capital costs (some additional explanations could be different taxes per industry, different cash cycles, different requirement of working capital, etc.). Since the diversity of industries in an economy, and therefore the variety of different capital structures, the study of a contraction considering the different financing channel could lead to better and more significant conclusions.

From a macro-policy perspective, it may be important to consider the channel when the focus is to re-activate the economy after a crisis. For example, if a policy trying to re-activate the economy will also increase the financial cost of the more relevant channel, the cure could be worse than the disease. Nielsen et all 2012 from a stock market perspective, have discovered that during financial crises a leverage effect occurs which is caused by the greater cost of issuing new equity. Moreover, Beck et all 2004 indicate that during economical crises there is an increase in bank competition, which raises the bank concentration driven by the search of

more competitive costs. These could perfectly generate a reduction in the debt cost faced by firms. In the first instance we expect to find that more equity dependent industries should have higher contractions in their outcome during Sudden Stop episodes. Supporting evidence can be found in Figure 1 which shows the GDP procyclicality of the different financing sources, where the equity capitalization as expected was the most procyclical (as calculated with the Enterprize Survey from the World Bank).

2 Methodology and Data

2.1 Methodology

Following the methodology applied by Cowan and Raddatz 2012 we will build the external finance variable to study the degree of dependance in each industry to the external capital flows. This variable was first used by Rajan 1996 and is defined as follows:

$$External\,Finance_f = \frac{CAPEX_f - CFO_f}{CAPEX_f} \quad (1)$$

Where CFO_f stands for the operational share of the cash flows of the firm f, which excludes any financing or investment cash flows generated by a firm, and $CAPEX$ corresponds simply to the reported capital expenditures on productive assets of the same firm. This values are aggregated by industry using their median per year, and later aggregated the same way by industry.

Notice that, like Rajan 1996, Braun & Larrain 2005 and Cowan & Raddats 2012, we will assume that the external finance requirements are industry-specific (which means that a database from USA should be representative of how the foreign companies in the same industry take their financing decisions). We will work under this assumption as dataset likes Compustat are quite reliable, meanwhile data from each country could bias the results, for example, if there is not enough firms observations or the quality of the information is not trustworthy. As proof that this assumption is not so far from reality, Rajan & Zingales 1995 found that the capital structure from a group of countries has the same determinants, such

as industrial specific characteristics like asset tangibility and size.

Now, since our focus is not to study solely the external dependance impacts on the internal productivity, but expand it to how the channels used for this could lead to different conclusions, we will open this variable between the most common sources of financing: Debt and Equity. To achieve this we face an additional difficulty since there is no complete report of where the money of each new investment comes from in a simple financial statement, not even how much from a new capital issue really turn out in productive assets. Nevertheless, the total shares and debt issuance can be calculated quite easily following Mclean & Zhao 2011 accounting definitions. Notice that, in the case of the Debt Issues, they subtract the increases in Accounts Payable and Accrued Liabilities since they represent an operational liability:

$$\begin{aligned} Share\,Issuances &= \triangle Stockholder\,Equity + \triangle Deferred\,Taxes - \triangle Retained\,Earnings \\ DebtIssuances &= \triangle Total\,Assets - \triangle Stockholder\,Equity \\ &\quad - \triangle Deferred\,Taxes - \triangle Accounts\,Payable\,and\,Accrued\,Liabilities \end{aligned}$$

The problem still remains as not all capital issuance ends up on capital expenditures, for example, some of them are used to refinance existing liabilities or just to change the capital structure of the company (such as a repurchase of stocks). Considering that the external finance specification which we are working on assume that, the straight use of these

accounting identities will lead to incorrect results. To fix this problem we will estimate, in a sort of first-stage estimation, how much of the different capital issues become productive assets. The empirical model that we will use for that is as follows:

$$CAPEX_{f,t} = \alpha_f + \alpha_t + \beta_i^E Equity\,Issues_{f,t} + \gamma_1 \ln(PPE_{f,t-1}) + \gamma_2 FCF_{f,t} + u_{f,t} \quad (2)$$

$$CAPEX_{f,t} = \alpha_f + \alpha_t + \beta_i^D Debt\,Issues_{f,t} + \gamma_1 \ln(PPE_{f,t-1}) + \gamma_2 FCF_{f,t} + u_{f,t} \quad (3)$$

Where $CAPEX_{f,t}$ are the capital expenditures from a firm f in the year t, $PPE_{f,t-1}$ are the productive fixed assets from the previous year (property, plants and equipment) and $FCF_{f,t}$ is the free cash flow from the firm in that year; these regressions will be estimated separately by industry according their ISIC codes. As a control we will include in the specification the firm's size measured by their fixed asset, as shown in Eisner 1956 where the future capital expenditures depends on how much has already been "expended". Also we will include as an independent variable the cash flows from that year, following the cash flows sensitivity discussion from authors like Fazzari & Hubbard 2000 or Kaplan & Zingales 1997, who identify a positive correlation between the year outcome and the capital expenditures.

This models will be estimated separately between Debt and Equity, and will be programmed to be estimated for each industry individually. From these estimations, since they were estimated in levels, we will get directly as a result how much from a capital issue impacts on the capital expenditure of a firm. Notice again that this model assumes a "natural"

expense on productive assets explained by the firm specific characteristics (measures by the fixed effect), the growth cycle and the internal earnings, just to get a better fix and isolate the real impact of a capital issue. Later, this results will be used to calculate the adjusted weight of each source of finance on the external finance variable previously defined:

$$\begin{aligned} Ext\,Finances^{*}_{Shares} &= Ext\,Finances \times \frac{\beta^{E} Share\,Issuances}{\beta^{E} Share\,Issuances + \beta^{D} Debt\,Issuances} \\ Ext\,Finances^{*}_{Debt} &= Ext\,Finances \times \frac{\beta^{D} Debt\,Issuances}{\beta^{E} Share\,Issuances + \beta^{D} Debt\,Issuances} \end{aligned}$$

Now, it remains unsettled how to identify when a country faces a outage of financing flows. Following the previous authors, the most common variable are the Sudden Stops episodes. We will keep working with this variable for multiple reasons: First, since it is based on capital inflows received by an economy, we can be sure that flows are intended to be invested in local firms. Second, even though they are not finally used in financing productive assets (non-FDI flows), they still are a relevant part of the local capital supply indirectly, so any contraction on them will probably increase the cost of external funding. Finally, being this the measure use by the previous authors, it simplifies the contrast and allows us to build a progressive discussion with the previous studies.

There are, however, multiple definitions of what can be called a Sudden Stop. Guidotti 2004 defines it as "A year in which the annual change in the capital account, scaled by GDP, is one standard deviation below the average, and below 5% of GDP", which is really easy to compute but does not quite fit our study since it includes in the calculus all the capital

account components (including non-capital flows such as central bank reserves) and it is based on net values (not only inflows).

Calvo & Mejia 2004 worked with a more complex definition, in which a phase can be called a Sudden Stop only if it meets the following 3 conditions:

1. "It contains at least one observation where the year-on-year fall in capital flows lies at least two SD below its sample mean."

2. "The Sudden Stop phase ends once the annual change in capital flows exceeds one SD below its sample mean."

3. "Moreover, the start of a Sudden Stop phase is determined by the first time the annual change in capital flows falls one SD below the mean."

The authors specifically try to remark the "large and unexpected" characteristic of these episodes, and working with a higher frequency database (quarterly and monthly), clearly they give a better definition of a SS. Still, they keep using net values and this specification faces new problems since they consider the historical mean, which leads to undervalue the earlier episodes just for a magnitude effect. Lastly, Forbes & Warnock 2012 defined a Sudden Stop as: "A fall in 1 SD from the 5-years moving average in the capital inflows, where the capital flows are measured as the sum of the last 4 quarters", which fixes the problems previously discussed and hence, will be the definition that we will follow.

A crucial objective on this study is to extend the research made by Cowan & Raddatz 2012 proving that their findings are significant even with a different specification of a capital

shortage episode. For that purpose, we aim to define a new kind of crisis based on the Global Liquidity variable worked by Cesa-Bianchi, Cespedes & Rebucci 2015. Let's call a 'Liquidity Drop" episode when the liquidity from a year falls over 1 standard deviation from the historical average (similar to the SS definition used by Calvo 1998). We will not be concerned on the problems from working with a historical mean since the data required to build the Global Liquidity variable is only annual and not longer than 15 year. Still, if we could get data with a higher frequency we would have chosen to work with a moving average similar to Forbes & Warnock 2012 Sudden Stop definition.

We will test the impact of the interaction of these episodes with the external finance variables on the output growth of an specific industry (measured as $growth = ln(Output_t/Output_{t-1})$. As a control variable we will include the size of the industry as its share on the whole economy since bigger and smaller industries faces different growth rates. Authors that support that idea includes Hymer & Pashigian 1962, Gupta 1969 and even Friedman 1948. Therefore, the basic model that will be estimated will be:

$$\begin{aligned} g_{i,c,t} &= \alpha_{i,c} + \alpha_t + \beta_1 Output\,Share_{i,c,t-1} \\ &\quad + \beta_2 S_{c,t} + \beta_3 S_{c,t} \times Ext_i^D + \beta_4 S_{c,t} \times Ext_i^E + \epsilon_{i,c,t} \end{aligned} \tag{4}$$

in which $g_{i,c,t}$ is the growth of the outcome of the industry i, in the country c during the year t, $Output\,share_{i,c,t-1}$ is the share of a specific industry output over the total manufacturing output from the previous year. $S_{c,t}$ is the relevant capital flow episode and finally

Ext_i^D and Ext_i^E are the external dependance calculated for each industry i finance through Debt and Equity respectively.

To check the robustness of our result, we will estimate the model for different cohorts of countries. We will divide the sample by its median in accordance with 5 different macroeconomic characteristics chosen, since they could be considered as proxy of the financial development for each country:

- Market Cap: The total market value of the shares of all public offering companies in an economy, as a share of the current GDP. This variable can be read as a measure of financial development as it informs us of the market depth and size. We assume that countries with higher Market Cap are more financially developed.

- Value Traded: The total value of all traded shares in a stock market exchange as a percentage of GDP. This measure can be read as an indicator of financial development since it informs us of market depth and liquidity.

- Bank Concentration: The 5 largest bank assets concentration, calculated as a share of the total assets from all the banks in a country held by the five biggest banks. This measure initially generates doubts about it's relationship with development. On one hand, more concentrated financial system could lead to market imperfections, slowing down financial transactions and increasing the financing cost of an economy. On the other hand, more concentrated and integrated financial industries face lower information and transaction costs, plus the insurance effect of the "Too big to fail", which means that

they are more likely to be rescued or to receive a government support when they face critical situations (since if they fail the impact would be catastrophoic). Claessens & Laeven 2004 found no correlation between competitiveness and concentration, moreover, Beck et all 2004 found that bank concentration only has a negative effect on financing costs faced by the firms in low income economies. Meanwhile, authors such as O'hara & Shaw 1990 and Sorkin 2010 document the positive effects on internal cost and financial flexibilities of the so called "To Big to Fail" banks. So, since our sample is restricted to middle income or above countries, we will assume that those with higher bank concentrations should be more financially developed.

- Chinn-Ito Financial Openness: An index measuring a country's degree of capital account openness, introduced in Chinn and Ito 2006. We believe that countries with less restrictions on cross-border financial transactions are more financially developed.

- Rule of Law: An index that captures the extent to which citizens trust in and follow societal law. We assume that countries with better government institutions supporting all the financial transactions should be more developed financially.

For what follows, we will refers as "Developed Countries" to those countries that are above the median on these variables in our sample.

2.2 Data

Following the methodology first applied by Rajan 1996, first we identify all the industries listed in the *UNIDO manufactory output database from the U.N.* and we build the external finance variable with all the firms present in the *USA compustat database*. This two dataset were able to be merged thanks to a SIC-ISIC key that firstly we built by simply matching the manufacturer codes listed in both data sets. The firm-level data was latter aggregated to get the industry-level data for each year and later aggregated by industry using the median across the year 1980 to 2009.

Also from Compustat we compute the equity and debt issuances for each industry following Mclean & Zhao 2011 accounting definitions and the additional variables used in the first stage estimations (by firm and year), such as the capital expenditures, the fixed assets from the previous year (property, plants and equipment) and the free cash flow. To ensure that this procedure we drop out of the sample the 5% lower industries according their number of observatios. Table 2 reports the external finance variables median which will be used in the estimations.

The sudden stop episodes were taken directly from Forbes & Warnock 2012. This variable was built using a sample of 58 countries throughout the period of 1980 to 2009 using the IFS database. This list exclude all countries listed as "Low-Income Economies" according to the World Bank (which means that our results only applied to middle income and high income economies). The global liquidity variable was built using data from the BIS, were the global liquidity is simply defined as the capitals flows received by local bank from other countries.

As we said previously, the information used to build the global liquidity variable is only available from 1996 to 2009, so it faces two problems: First, the years being compared are considerably less than those those compared in the SS episodes. And secondly, the liquidity drop episodes could be biased by the 2008 financial crisis since we are working with a historical mean. In spite of all this, still will be useful to test if the basic model applies with this new approach of define a capitals crisis, where the financing flows ceases. Table 1 shows the Sudden Liquidity Drops episodes which we identified according this definition.

The cohorts measures will be formed considering the mean of the previously described variables in the maximum range of dates possible from 1985 to 2009. The "Market Cap" will be taken from the World Bank database together with the "Value Traded", "Bank Concentration" will be taken from Bankscope, "Chinn-Ito Financial Openness indicator" will be taken directly from these authors webpage[1] and Rule of Lawwill be taken from the QOG institute website[2]. Figure 2 shows the scatter plot of each measure against the GDP per capita (the most common measure of economic development) and Table 7 shows the MCO statistic significance, demonstrating that on average these measures indicate a positive relationship with it (And therefore, a good approach of financial development).

Finally, the output growth of an industry and the industry output share were taken from the UNIDO database of industrial outputs. All the following estimations consider the same sample in accordance with years and countries (except the Sudden Liquidity Drop estimations, which consider a smaller sample for the reasons previously indicated).

[1] http://web.pdx.edu/~ito/Chinn-Ito_website.htm
[2] http://qog.pol.gu.se/data

3 Main Results

3.1 Basic Specification

The impact of the Sudden Stops and Sudden Liquidity Drops in the productivity are reported in Table 3. Primarily, we have found similar results to those shown in Cowan and Raddatz 2013, implicating that Sudden Stops have a large negative and statistically significant effect impact on the output growth (about 2%), with an additional output drop of about 1,12% for each percentage of the capital expenditure financed through external sources. When the external finance variable is opened, we discovered that only the share of external resources financed through equity is significant for the whole sample, which is in line with our previous beliefs since equity is a more pro-cyclical source of finance. Additionally, the lack of significance in the debt variable can be supported by the contra-cyclical effect of debt documented in studies like Beck et all 2004.

Now, for the liquidity drop episodes we found that these kind of episodes generate a larger, significant input drop (4.9%), with an additional drop of 2.3% for each percentage of CAPEX funded through external finance. Following this, when we open the external finance variable in the liquidity drop episodes, the relevant source of finance is now the debt issue, contrary to our previous results. One explanation for this difference is that the Global Liquidity variable is built considering only financing flows that passed through international banks, meaning that this measure could be biased in favor of debt flows (inasmuch as this measures does not consider equity issues receive directly by a international company or from other direct investors). Despite the fact that the external finance decomposition in this

case is problematic, this results are quite relevant, as they support the principal result from Rajan and Zingales 1998, Braun and Larrain 2005 and from Cowan and Raddatz 2013. In other words, even with a different definition of a constrained episode, the external finance dependance still has a negative and significant impact on the output growth.

It is important to state that the prior SS results obtained from opening the external finance variable are significant even without the first stage estimation of the shares of equity and debt as it is shown in Table 9. In the "Sudden Liquidity Drops" estimations however, the relevant source of financing changes to equity (indicating a result more similar to that of the Sudden Stop episodes). We believe that this difference comes from the lack of a longer sample to describe this episodes alongside with the problem of working without a rolling window, therefore, we will limit our analysis to this point according to this variable hoping that in the future this measure will work better with a longer sample.

Even if we could show better results without the first stage, we will keep the adjusted results as it is obvious the problem from assuming that all the capital issues were used to finance new productive assets. For example, assuming that each firm has an optimal capital structure of equity and debt, even if the equity share is constant in time, the firm will have to issue new debt when the existing debt expires just to keep the optimal structure (several authors defending the optimal capital structure argument includes Myers 1984, DeAngelo & Masulis 1980 and Titman & Wessels 1988). Therefore, working with the assumption that each debt re-financing as a capital expenditure will bias our results. An example can be found on industries with lower asset tangibility, which implies higher long-term debt rates

and therefore more frequent refinancing payments of their debt.

3.2 Cohorts Analysis

Finally, table 4 reports the basic specification for the SS episodes dividing the sample by its median in accordance with the 5 different macroeconomic characteristics chosen as proxies of financial development for each country. These results shows that the external finance interaction is only significant in the more financially-developed countries, meanwhile the sudden stop variable has per-se a negative effect on the less developed economies, independent of the External Finance dependance.

The cohorts results contrast with those found in Cowan and Raddatz 2013, since the SS variable is not longer significant at the same time with the external finance interaction. They differentiate the sample according the Financial Openness (the same variable that we used) and by market size, which are quite similar and in the same line that those cohorts consider in this study. The reason why they could be different is that in our sample we consider posterior years, more important, the years where the subprime crisis occurred, meaning that the previous result could no longer apply for periods extremely volatile.

Something similar happens when the external finance variable is open as Table 5 shows, where the equity share is always significant for the more developed countries. One way to understand this is that the less developed economies could face more constraints to get financing than those which are more developed. Therefore, a sudden stop has a bigger impact on the whole economy. In contrast, in the more developed economies, firms have more access

to different sources of financing and could adjust better to a shortage of financing flows. So, only the firms that relies more on the "Pro-cyclical" source of financing should face contractions because of the capital cost increase. Edwards 2004, Mendoza 2010 and Calvo et all 2003 could support this idea since each of them found that the recessive effect of these episodes are more likely to be seen in less developed economies.

Table 5 also shows that in more developed countries for the cohorts based on the Value Traded, the Bank Concentration and the Chin-Ito Financial Openness indicator, both parts of the external finance dependance are significant, but since this result depends on the variable used to build the cohorts we don't find it relevant, nevertheless, the persistent significance of the equity share for all the different cohorts it's quite remarkable and is on line with the our beliefs.

These results presents some remarkable conclusions. Trying to increase the access to the capital markets on less developed country to reduce the recessive effects of a financial crisis will not lead to significant improvements, but for the more-developed ones, this should be one of the first measure to be considered. This makes perfect sense since they have bigger and more sophisticated financial markets so the local firms end up relying more a more on the external funding. Therefore, in this kind of countries, policy makers should focus on how to secure the capital supply for the productive industries, stimulating banks to keep their loans interest rates steady and more importantly, encouraging investors to not stop investing in the stocks market. A good way to achieve this may be promoting stock's holders reinvestment, either through restricting the possible dividends payments or through a tax-subsidy for those

who reinvest in their companies.

4 Conclusions

Summarizing, we found several results. First we found supporting evidence that the external finance dependance has a negative impact on firm's growth when a shortage of capital flows happens, even considering a larger sample and a different crisis definition compared to the previous literature. At this point we defined a "Liquidity Drop Episode" based on the global liquidity values taken from the BIS as an additional capital shortage definition besides the classical Sudden Stops.

After that, we differentiated the external finance flows according equity and debt and we found that the weakness to capital shortages is more relevant for those industries that rely mainly on stock issuances. Since we were unable to look directly at how much of a capital issue is expended in productive assets (as required by the external finance variables used), we employed a first stage estimation to improve the separation of the external finance between equity and debt.

Once we tested this results for different cohorts of countries, we found that the persistent significance of the Sudden Stops and its interaction with the external dependance found by the previous authors is loss. This happened when the sample includes the 2008 financial crises, leaving the episode significance only relevant for the less financially developed countries and its interaction is only significant for the more developed, which could imply that the previous result does not works on crises as big as the one that we faced in 2008.

Finally, when we compare these results with a different cohort of countries according to their financial development, we found that in more financially advanced economies the Sudden Stop effect depended on the capital flows channel. This affected solely those firms that are more dependent on external resources. On the contrary, in less developed economies there is a recessive effect which is no longer dependent purely on the financing channel, and therefore those governments should not focuss on this variable when they seek for solutions before and after these crises.

Appendix: Tables and Figures

TABLES

Country Code	Year
ARG	2001
AUT	2008
BEL	2008
BOL	2003, 2009
BRA	1998
BRA	2009
CHE	2008, 2009
DEU	2009
FRA	2008
GBR	2008
GTM	2003
IDN	1998, 2002
IND	2007
IRL	2009
ISL	2008
ITA	2008
JPN	1996, 1999, 2009
KOR	1998, 2008
LKA	2008
MEX	2002, 2009
MYS	2008
NLD	2008, 2009
NZL	2000
PAN	2002
PER	2008
PHL	2008
POL	2008
PRT	2008
RUS	2008
SGP	2009
THA	1997, 1998, 1999, 20008
TUR	2001
TWN	2008
ZAF	2008

Table 1: Sudden Liquidity Drops Episodes, defined as years were the global liquidity falls 1 SD below historical average (1996-2009).

ISIC	Ext Fin.	E.F. Equity	E.F. Debt	E.F. Equity*	E.F. Debt*
1510	-0.8985	-0.6134	-0.2850	-0.8741	-0.0244
1520	-0.0348	-0.0163	-0.0184	-0.0165	-0.0183
1530	-0.9247	-0.4790	-0.4456	-0.4779	-0.4468
1540	0.2528	0.1572	0.0955	-0.4879	0.7407
1550	-0.7094	-0.3314	-0.3779	-2.6062	1.8968
1710	-0.0779	-0.0325	-0.0453	-0.0104	-0.0674
1720	-0.6932	-0.1382	-0.5549	-0.4557	-0.2375
1730	-0.3435	-0.2931	-0.0503	1.8188	-2.1622
1810	-1.4474	-1.1980	-0.2493	-1.4506	0.0032
1920	-1.8592	-1.4382	-0.4209	-0.9919	-0.8673
2020	-0.1622	-0.0752	-0.0869	0.8057	-0.9679
2100	-0.2410	-0.0665	-0.1744	-0.1269	-0.1142
2210	-1.5312	-1.5518	0.0206	2.9511	-4.4822
2220	-0.8382	-0.0476	-0.7905	-0.1533	-0.6848
2320	-0.1667	-0.0195	-0.1471	-0.0940	-0.0728
2330	0.8028	0.4388	0.3639	0.6203	0.1825
2410	-0.1399	-0.0708	-0.0690	-0.0302	-0.1097
2430	0.1036	0.0514	0.0521	0.0346	0.0690
2510	-0.1881	0.0654	-0.2535	-0.0198	-0.1684
2520	-0.2613	-0.1611	-0.1001	-0.4218	0.1605
2610	-0.0426	-0.0301	-0.0124	-0.0386	-0.0040
2690	-0.1946	-0.1292	-0.0653	-0.0591	-0.1355
2710	-0.1158	-0.0687	-0.0470	-0.0678	-0.0479
2720	-0.1637	-0.0648	-0.0988	-0.0159	-0.1478
2730	-1.2231	-1.5868	0.3637	0.2621	-1.4852
2810	-0.6710	-0.2270	-0.4439	-0.1615	-0.5095
2890	-1.0269	-0.1115	-0.9153	0.0538	-1.0807
2910	-0.7056	-0.2046	-0.5009	0.6623	-1.3679
2920	0.4670	0.3069	0.1600	0.3938	0.0732
2930	-0.8212	1.5920	-2.4132	-1.0143	0.1932
3000	0.8367	0.7809	0.0557	0.1863	0.6504
3110	-0.8909	-0.4513	-0.4395	-0.5262	-0.3647
3120	0.2954	0.1998	0.0955	0.2195	0.0759
3140	1.5813	0.7305	0.8507	0.6811	0.9002
3150	-0.5914	-0.3122	-0.2791	-0.4073	-0.1840
3190	-0.1272	-0.0821	-0.0450	-0.0897	-0.0375
3220	1.4601	1.1715	0.2885	0.7093	0.7508
3230	2.5885	1.5911	0.9973	2.3033	0.2852
3310	2.2319	1.8997	0.3321	2.1717	0.0602
3320	-0.4858	1.0628	-1.5486	0.3897	-0.8755
3330	-2.3390	0.0830	-2.4220	-6.6185	4.2795
3410	0.0040	0.0047	-0.0007	0.0031	0.0008
3420	-1.0980	-0.7157	-0.3822	-0.7944	-0.3036
3510	-0.9281	-0.3099	-0.6181	-0.1118	-0.8163
3520	0.3653	0.1628	0.2024	0.0323	0.3330
3530	-0.7361	0.4833	-1.2194	-0.6809	-0.0552
3590	-1.6295	0.0288	-1.6583	-1.3110	-0.3185
3610	-1.4868	0.1839	-1.6707	-1.7032	0.2163
3690	-0.1713	-0.0481	-0.1231	3.4283	-3.5997

Table 2: Median per industry of the External Finance variables. Estimated value are reported with *.

	Sudden Stops		Sudden Liquidity Drops	
	(1)	(2)	(3)	(4)
SS	-0.0183***	-0.0178***		
	(0.00490)	(0.00495)		
SS x Ext.	-0.0125*			
	(0.00695)			
SS x Equity		-0.0131*		
		(0.00696)		
SS x Debt		-0.0103		
		(0.00742)		
SL			-0.0492***	-0.0507***
			(0.0114)	(0.0114)
SL x Ext.			-0.0232*	
			(0.0136)	
SL x Equity				-0.0215
				(0.0131)
SL x Debt				-0.0303*
				(0.0151)
L. Output share	-3.289***	-3.288***	-3.676***	-3.678***
	(0.689)	(0.689)	(0.783)	(0.783)
Observations	21,517	21,517	18,051	18,051
Number of groups	1,823	1,823	1,752	1,752
R-squared	0.112	0.112	0.119	0.119
Hausman Chi2	1395	1396	31.09	31.80
Hausman P-Value	0.0000	0.0000	0.0053	0.0068
Country-Industry FE?	YES	YES	YES	YES
Years FE?	YES	YES	YES	YES
1st Stage Adjusted?	YES	YES	YES	YES
Cluster by Industry?	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: The dependent variable is the growth of the outcome of a given industry in a given country and year. *SS* is the Sudden Stop dummy (episodes with sharp decreases in gross capital inflows) taken from Forbes 2012, *SL* is the Sudden Liquidity Drops dummy (decreases in Global Liquidity Level), *SS x Ext.* and *SL x Ext.* are the interaction of the capital flow episodes (SS & SL) with the measure of external finance, *SS x Equity* and *SL x Equity* are the interaction of the capital flow episodes (SS & SL) with the measure of external finance through shares issues, *SS x Debt* and *SL x Debt* are the interaction of the capital flow episodes (SS & SL) with the measure of external finance through debt, *L. Output share* is the output share of a specific industry of the total manufactory output in the previous year. Robust standard errors are reported in parentheses (clustered by Industry).

Sudden Stops: Basic estimations

	(1)	(2)		(3)		(4)		(5)		(6)	
	Full	High	Low	High	Low	High	Low	High	Low	High	Low
SS	-0.0183***	-0.00656	-0.0256***	-0.00826	-0.0424***	-0.00178	-0.0317***	0.00693	-0.0695***	0.00278	-0.0791***
	(0.00490)	(0.00644)	(0.00742)	(0.00572)	(0.00973)	(0.00810)	(0.00711)	(0.00582)	(0.0121)	(0.00541)	(0.00986)
SS x Ext.	-0.0125*	-0.0203*	-0.00333	-0.0166*	-0.00407	-0.0191*	-0.00185	-0.0174***	-0.00628	-0.0148*	-0.00899
	(0.00695)	(0.0110)	(0.00668)	(0.00895)	(0.0113)	(0.00995)	(0.00672)	(0.00506)	(0.0160)	(0.00827)	(0.0116)
L. Output share	-3.289***	-2.114***	-4.496***	-2.382***	-4.357***	-2.557***	-5.059***	-2.796***	-4.075***	-2.344***	-5.266***
	(0.689)	(0.401)	(1.442)	(0.483)	(1.414)	(0.619)	(1.037)	(0.699)	(0.944)	(0.540)	(1.186)
R-squared	0.112	0.181	0.088	0.166	0.108	0.119	0.122	0.134	0.113	0.151	0.105
Observations	21,517	11,596	9,921	12,773	9,546	12,586	8,931	12,772	8,745	13,247	9,141
Number of groups	1,823	914	909	966	905	977	846	958	865	987	885
Country-Industry FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Years FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
1st Stage Adjusted?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cluster by Industry?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: The dependent variable is the growth of the outcome of a given industry in a given country and year. *SS* is the Sudden Stop dummy (episodes with sharp decreases in gross capital inflows) taken from Forbes 2012, *SS x Ext.* is the interaction of the capital flow episode (SS) with the measure of external finance, *L. Output share* is the output share of a specific industry of the total manufactory output in the previous year. Regression in column (1) consider the full sample. Regressions in column (2) contrast the result for the higher and lower half according the Market Cap (using the sample median), column (3) contrast the result for the higher and lower half according the Value Traded , column (4) contrast the result for the higher and lower half according the Bank Concentration, column (5) contrast the result for the higher and lower half according the Chin Ito Financial Openness Indicator AND column (6) contrast the result for the higher and lower half according the Rule-of-Law. Robust standard errors are reported in parentheses (clustered by Industry).

Sudden Stops: Basic estimations

	(1)	(2)		(3)		(4)		(5)		(6)	
	Full	High	Low	High	Low	High	Low	High	Low	High	Low
SS	-0.0178***	-0.00577	-0.0256***	-0.00851	-0.0408***	-0.00184	-0.0307***	0.00769	-0.0697***	0.00326	-0.0786***
	(0.00495)	(0.00645)	(0.00764)	(0.00567)	(0.00985)	(0.00820)	(0.00719)	(0.00598)	(0.0123)	(0.00546)	(0.0102)
SS x Equity	-0.0131*	-0.0211*	-0.00339	-0.0164*	-0.00618	-0.0190*	-0.00286	-0.0183***	-0.00601	-0.0153*	-0.00957
	(0.00696)	(0.0110)	(0.00747)	(0.00894)	(0.0116)	(0.0101)	(0.00639)	(0.00490)	(0.0159)	(0.00824)	(0.0117)
SS x Debt	-0.0103	-0.0167	-0.00314	-0.0177*	0.00220	-0.0194*	0.00264	-0.0140**	-0.00714	-0.0126	-0.00713
	(0.00742)	(0.0121)	(0.00693)	(0.0100)	(0.0114)	(0.0111)	(0.00714)	(0.00673)	(0.0173)	(0.00983)	(0.0126)
L. Output share	-3.288***	-2.114***	-4.496***	-2.382***	-4.351***	-2.557***	-5.057***	-2.794***	-4.075***	-2.343***	-5.265***
	(0.689)	(0.401)	(1.442)	(0.482)	(1.413)	(0.619)	(1.036)	(0.699)	(0.944)	(0.540)	(1.185)
R-squared	0.112	0.181	0.088	0.166	0.108	0.119	0.122	0.134	0.113	0.151	0.105
Observations	21,517	11,596	9,921	12,773	9,546	11,245	10,970	12,772	8,745	13,247	9,141
Number of Groups	1,823	914	909	966	905	967	904	958	865	987	885
Country-Industry FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Years FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
1st Stage Adjusted?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cluster by Industry?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: The dependent variable is the growth of the outcome of a given industry in a given country and year. *SS* is the Sudden Stop dummy (episodes with sharp decreases in gross capital inflows) taken from Forbes 2012, *SS x Equity* is the interaction of the capital flow episode (SS) with the measure of external finance through shares issues, *SS x Debt* is the interaction of the capital flow episode (SS) with the measure of external finance through debt, *L. Output share* is the output share of a specific industry of the total manufactory output in the previous year. Regression in column (1) consider the full sample. Regressions in column (2) contrast the result for the higher and lower half according the Market Cap (using the sample median), column (3) contrast the result for the higher and lower half according the Value Traded , column (4) contrast the result for the higher and lower half according the Bank Concentration, column (5) contrast the result for the higher and lower half according the Chin Ito Financial Openness Indicator AND column (6) contrast the result for the higher and lower half according the Rule-of-Law. Robust standard errors are reported in parentheses (clustered by Industry).

FIGURES

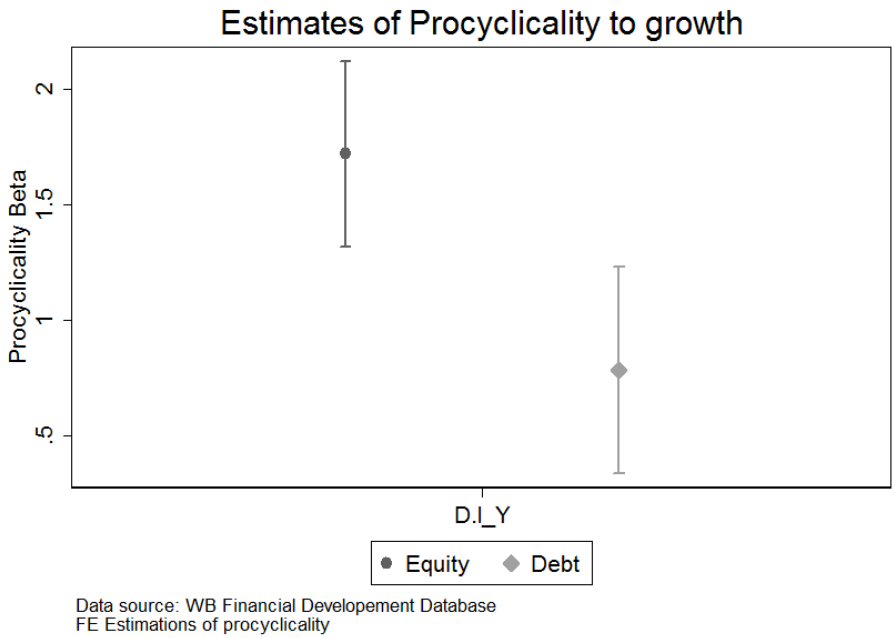

Figure 1: Procyclicality estimations for total domestic Equity and Debt Capitalization.

Procyclicality to growth estimations		
	(1)	(2)
VARIABLES	Equity	Debt
D.l_Y	1.720***	0.784***
	(0.204)	(0.227)
Constant	28.04***	30.22***
	(0.0285)	(0.0302)
Observations	1,947	870
R-squared	0.037	0.014
Number of Countries	112	46
Country FE?	YES	YES
Years FE?	NO	NO
Hausman Chi2	3.341	-0.647
Hausman P-Value	0.0676	1
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 6: The dependent variable is the logarithm GDP of a given country in the previous year. *Equity* refers as the logarithm of a country total Market Capitalization and *Debt* is the logarithm of the total Debt of a country (as the sum of public and private debt issuances in certain year)

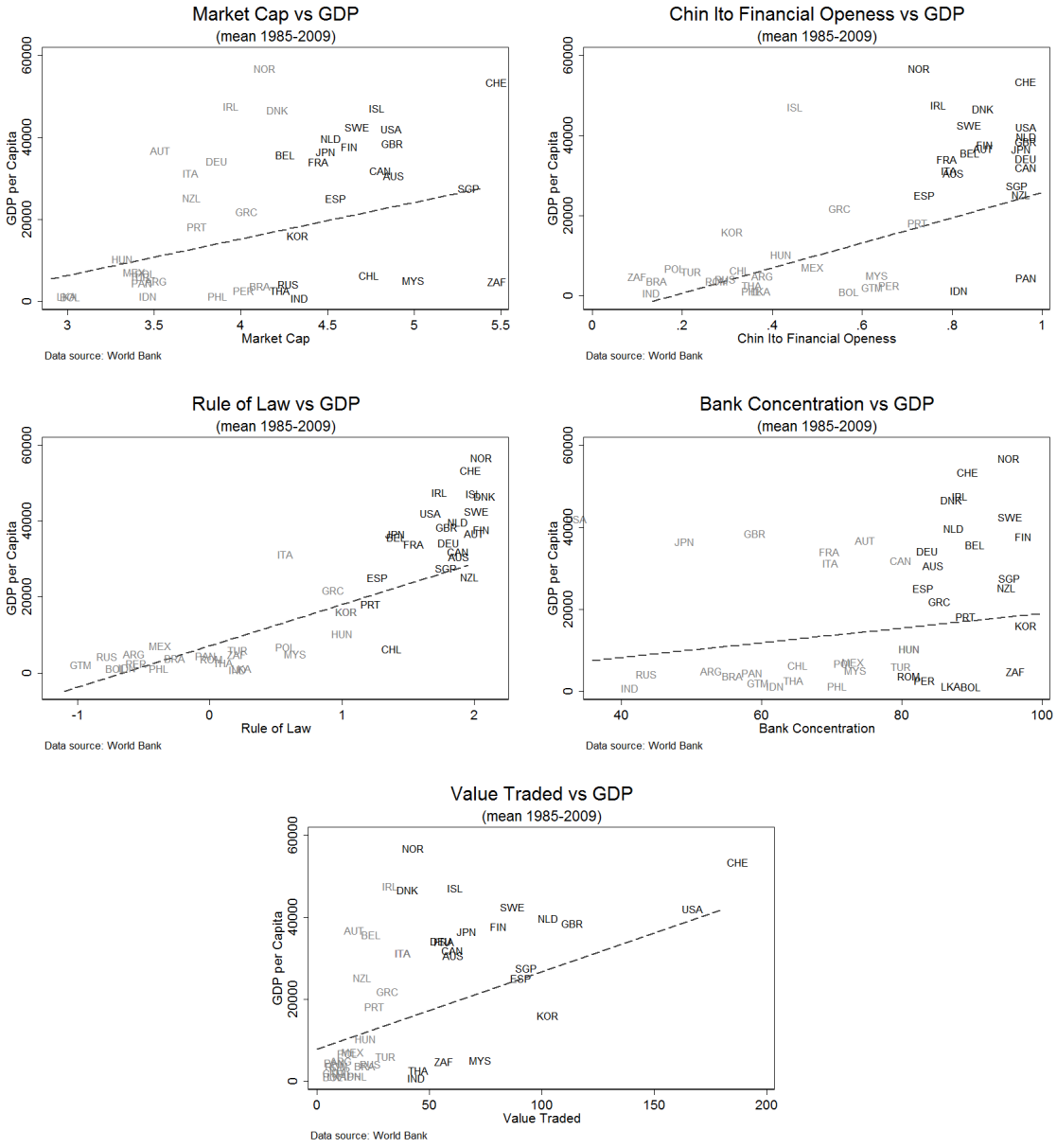

Figure 2: Scatter plots by groups of GDP per capita by different cohorts.

Cohorts measures estimations against GDP

	(1)	(2)	(3)	(4)	(5)
Market Cap	0.890***				
	(0.0574)				
Value Traded		0.0104***			
		(0.000674)			
Bank Concentration			0.0201***		
			(0.00368)		
Chinn Ito				2.333***	
Financial Openness				(0.0887)	
Rule-of-Law					1.120***
					(0.0229)
Constant	5.437***	8.762***	7.710***	7.433***	8.144***
	(0.239)	(0.0549)	(0.297)	(0.0693)	(0.0356)
Observations	1,035	835	473	1,065	1,083
R-squared	0.177	0.200	0.075	0.357	0.667
Years FE?	NO	NO	NO	NO	NO

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: The dependent variable is the logarithm GDP per capita of a given country in the same year. *Market Cap* corresponds to the total market value of the shares of all public offering companies in an economy, as a share of the current GDP. *Value Traded* corresponds to the total value of all traded shares in a stock market exchange as a percentage of GDP. *Bank Concentration* corresponds to the 5 largest bank assets concentration, calculated as a share of the total assets from all the banks in a country held by the five biggest banks. *Chinn-Ito Financial Openness* is an index measuring a country's degree of capital account openness, introduced in Chinn and Ito 2006. Finally, *Rule of Law* corresponds to an index that captures the extent to which citizens trust in and follow societal law published by QOG institute.

Additional Tables

Sudden Liquidity Drops: Basic estimations

	(1)	(2)		(3)		(4)		(5)		(6)	
	Full	High	Low	High	Low	High	Low	High	Low	High	Low
SL	-0.0492***	-0.0363***	-0.0489**	-0.0431***	-0.0611***	-0.0580**	-0.0331***	-0.0152	-0.0872***	-0.0484***	-0.0930***
	(0.0114)	(0.0122)	(0.0226)	(0.0100)	(0.0213)	(0.0264)	(0.0112)	(0.0172)	(0.0145)	(0.0148)	(0.0159)
SL x Ext.	-0.0232*	0.00126	-0.0468*	-0.00942	-0.0355	-0.0289	-0.0217**	-0.0370**	-0.00859	-0.00890	-0.0303
	(0.0136)	(0.0157)	(0.0268)	(0.0129)	(0.0227)	(0.0326)	(0.00982)	(0.0153)	(0.0195)	(0.0153)	(0.0201)
L. Output share	-3.676***	-2.221***	-5.406***	-2.230***	-5.206***	-2.629***	-6.142***	-2.699***	-5.071***	-2.131***	-6.926***
	(0.783)	(0.496)	(1.963)	(0.589)	(1.806)	(0.759)	(1.361)	(0.814)	(1.191)	(0.602)	(1.459)
Observations	18051	9997	8054	10356	8353	9008	9640	10281	7770	10706	7978
R-squared	0.119	0.184	0.097	0.170	0.113	0.130	0.128	0.133	0.121	0.165	0.112
Number of groups	1,752	894	858	899	901	897	903	905	847	934	867
Country-Industry FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Years FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
1st Stage Adjusted?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cluster by Industry?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: The dependent variable is the growth of the outcome of a given industry in a given country and year. *SL* is the Sudden Liquidity Drops dummy (decreases in Global Liquidity Level), *SL x Ext.* is the interaction of the capital flow episode (SL) with the measure of external finance, *L. Output share* is the output share of a specific industry of the total manufactory output in the previous year. Regression in column (1) consider the full sample. Regressions in column (2) contrast the result for the higher and lower half according the Market Cap (using the sample median), column (3) contrast the result for the higher and lower half according the Value Traded , column (4) contrast the result for the higher and lower half according the Bank Concentration, column (5) contrast the result for the higher and lower half according the Chinn Ito Financial Openness Indicator AND column (6) contrast the result for the higher and lower half according Rule-of-Law. Robust standard errors are reported in parentheses (clustered by Industry).

Episodes with and without the first stage estimations

	Sudden Stops			Sudden Liquidity Drops		
SS	-0.0183***	-0.0177***	-0.0178***			
	(0.00490)	(0.00503)	(0.00495)			
SS x Ext.	-0.0125*					
	(0.00695)					
SS x Equity		-0.0142*	-0.0131*			
		(0.00774)	(0.00696)			
SS x Debt		-0.0106	-0.0103			
		(0.00896)	(0.00742)			
SL				-0.0492***	-0.0421***	-0.0507***
				(0.0114)	(0.0118)	(0.0114)
SL x Ext.				-0.0232*		
				(0.0136)		
SL x Equity					-0.0449***	-0.0215
					(0.0153)	(0.0131)
SL x Debt					0.000149	-0.0303*
					(0.0197)	(0.0151)
L. Output share	-3.289***	-3.289***	-3.288***	-3.676***	-3.675***	-3.678***
	(0.689)	(0.689)	(0.689)	(0.783)	(0.783)	(0.783)
Observations	21,517	21,517	21,517	18,051	18,051	18,051
R-squared	0.112	0.112	0.112	0.119	0.119	0.119
Number of folio	1,823	1,823	1,823	1,752	1,752	1,752
Country-Firm FE?	YES	YES	YES	YES	YES	YES
Years FE?	YES	YES	YES	YES	YES	YES
1st Stage Adjusted?	-	NO	YES	-	NO	YES
Cluster by Industry?	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: The dependent variable is the growth of the outcome of a given industry in a given country and year. *SS* is the Sudden Stop dummy (episodes with sharp decreases in gross capital inflows) taken from Forbes 2012, *SL* is the Sudden Liquidity Drops dummy (decreases in Global Liquidity Level), *SS x Ext.* and *SL x Ext.* are the interaction of the capital flow episodes (SS & SL) with the measure of external finance, *SS x Equity* and *SL x Equity* are the interaction of the capital flow episodes (SS & SL) with the measure of external finance through shares issues, *SS x Debt* and *SL x Debt* are the interaction of the capital flow episodes (SS & SL) with the measure of external finance through debt, *L. Output share* is the output share of a specific industry of the total manufactory output in the previous year. Robust standard errors are reported in parentheses (clustered by Industry).

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