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SUDDEN STOPS, CAPITAL CONTROLS AND WHEN TO APPLY

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Emerging market countries need capital inflows to finance their current account deficits because they are short in domestic savings. Foreign direct investment is the desired form of capital inflows. Indirect capital inflows can also boost growth if used wisely. If a country has weak fundamentals and institutional structures or there exits an external shock, speculative foreign capital can easily and rapidly fly away with a financial crisis left behind. In this study, we outline the theoretical framework of sudden stops, and then investigate inflow control mechanisms to minimize the volatility of capital movements.

Gelişmekte olan ülkeler yurt içi tasarruf açıklarından kaynaklanan cari açıklarını kapatmak için yurt dışından sermaye girişine ihtiyaç duymaktadırlar. Özellikle doğrudan yatırımlar yurt içi tasarrufları tamamlayıcı şekilde büyümeye katkı sağlamaktadır. İyi idare edildiği takdirde büyümeyi olumlu etkileyecek dolaylı sermaye hareketleri ise, yanlış uygulanan politikalar veya dış kaynaklı sorunlar sonucunda ülkeden aniden ayrılabilmekte ve krizlere yol açabilmektedir. Çalışmada ani duruşlara ilişkin teorik çerçeve çizildikten sonra sermaye hareketlerindeki oynaklığın minimize edilmesi için sermaye girişlerine uygulanabilecek kontrol mekanizmaları ve yöntemleri ortaya konulmaya çalışılmıştır.

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INTRODUCTION

Some significant improvement and growth have begun in the last thirty years' world economy by force of the globalization which can economically be defined as the free movement of goods, and capital in-between countries. The liberalization of commerce and the removing of the rules which obstruct the movement of the capital by the countries one after another started an integration process among the national economies. The positive sides of this integration aside, the spreading of a problem from one economy to another has become a frequently encountered fact. While expecting the international financial integration to reduce the macroeconomic volatility, the liberalization of the capital account may bring the countries to an unprotected position against the crisis.

If there is a savings deficit in one country, there must be a capital flow from the countries with a savings surplus to this country. Thus the country with savings deficit can have stability in consumption without experiencing fluctuations. The capital inflow which enters the country as a direct foreign investment for contribution to the country's production can stay in the country for a long time as it cannot be easily liquidated. But the short term speculative capital inflow which enters the country as portfolio investment can suddenly leave the country as it has the fast moving ability. In this case, a fast decrease in expenditure becomes inevitable for economies which are in need of this kind of capital. The sudden stop of foreign capital inflow may result from the internal economic and political dynamics of the said country as well as from the loss of trust of the foreign investors due to the problems of other countries with similar characteristics.

The financial crises experienced in emerging market economies during the second half of the 90s have directed the economists and policy makers to study the reasons and the results of sudden stops in international capital movements. They were particularly focused on the big decrease in net capital flows, in other words on the sudden stops. This present study is discussing the definition of the sudden stops and involving the different definitions used in the literature. Furthermore in the study the internal and external factors causing sudden stops are discussed, the fact that long term foreign capital is more stable and does not create fragility in the economy is studied and the relation between the openness and sudden stops is examined.

The East Asian crisis and the following crises have directed the countries to revise their macroeconomic policies and to adopt other policies which will decrease the vulnerability against external shocks and reduce the sudden stop and a big devaluation risk. The ideas of keeping the internal and external debts at reasonable levels, reducing the current account deficit and accumulating the international money reserves became prominent. Holding high level reserves as an alternative to capital controls became the choice of many emerging market economies and those countries started to have large amount of current account surpluses.

Countries have taken different precautions against the sudden stops in capital movements. While countries like South Korea, Thailand, Indonesia, and Turkey chose IMF-supported programs, some others like Malaysia and Chile preferred to minimise the effects of unstable foreign capital by imposing several restrictions on the capital movements. While Malaysia which is known with its successful capital control exercises chose to focus on the capital outflows, Chile preferred to stem the capital inflow and they both have created successful control mechanisms, even proposed by IMF and liberal economists. The interference of the Central Bank in Hong Kong which is known as the heart of the free market economy in the market by using its resources constitutes an interesting situation.

When capital controls are not all-encompassing and as long as the development level of the financial markets increases, the controls become inefficient in the long term and markets somehow discover the legal and illegal means to by-pass these controls. Therefore, when there is any control imposed on capital movements, it must be exercised on a broader scope and for a short term.

Issues like how foreign trade, the current account deficit and the Gross Domestic Product are affected in the short term were studied following the causes of the sudden stops. And finally, the study works on making some suggestions on when to apply controls on capital inflows and what kind of restrictions can be applied to deter the foreign investors.

1. SUDDEN STOPS

Emerging market economies were hit by economic crises in 1990's characterised by deep recession, high unemployment and increasing number of poor population. Another common point of the said crises is the immediate and big interruptions in the international capital flow entering these countries called "sudden stop" in the literature. The term "sudden stop" was first used in the study of Dornbusch, Goldfajn and Valdes published in 1995 and gained an analytical aspect with Guillermo A. Calvo's article published in 1998[1]. There are no such interruptions in capital flows at crises for the developed countries and the sudden stop seems to be a fact peculiar to the emerging market economies, at least until the recent financial crisis.[2]

An important part of the sudden stop literature maintain the fact that emerging market economies are subject to big fluctuations in external capital supply and this situation is a result of an imperfection in the international financial markets. Calvo, Izquierdo and Mejia 2004[3] and Guidotti, Sturzenegger and Villar 2004[4] can be shown as examples of this opinion. Therefore the "Wall Street" becomes either the carrier contaminating the shock or the source of the shock itself. The problems in the global financial system are affecting the developing countries' economies as external shocks and these countries are getting their shares of the problems of the global financial system even if they don't have any structural problems. For example, the record high current deficits of the United States of America[5], the recent mortgage crisis, the bankruptcy of

1 Guillermo A. Calvo, "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops", Journal of Applied Economics, vol. 1, No.1, November 1998. Rudiger Dornbusch, Ilan Goldfajn and Rodrigo O. Valdes, "Currency Crises and Collapses", **Brookings Papers on Economic Activity**, Vol. 1995, No. 2 (1995), pp. 219-293.

2 Guillermo A. Calvo and Carmen M. Reinhart, "Fixing for Your Life", **Brookings Trade Forum**, Ed. Susan M. Collins and DaniRodrik,2001,(Online) http://muse.jhu.edu/demo/brookings_trade_forum/v2000/2000.1calvo.pdf, 11 August 2007.

3 Guillermo A. Calvo, Alejandro Izquierdo and Luis-Fernando Mejia, "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects", **Inter-American Development Bank, Working Paper** No: 509, July 2004.

4 Pablo E. Guidotti, Federico Sturzenegger and Agustin Villar, "On the Consequences of Sudden Stops", Economia, vol. 4, No. 2, 2004, (Online) http://200.32.4.58/~fsturzen/Economia_Guidotti.pdf, 5 March 2006.

5 Some researchers claim that the big current deficit of the United States of America does not constitute a threat and it is not even a real deficit.

the hedge funds due to their risky investments are threatening subjects for the developing countries.

Sudden stops in capital movements may result from the internal vulnerabilities of countries as well as they can be external. When the investors have trust issues for any reason, the countries which seem reluctant to solve their structural problems may experience the fast flight of the capital from the country. Several factors like the increase in foreign borrowing (dollarization problem), the lack of local goods in the international commercial arena, the insufficiency of the international reserves and the important portion of the short term debts within the gross debt being short term are increasing the vulnerability of the country.

1.1. Sudden Stop Measures

The changes in current accounts due to the sudden flight of foreign investors (because of trust issues) and triggered by an external shock and/or the structural weakness peculiar to the country are identified as sudden stops. But it would not be appropriate to qualify every change in the current account as a sudden stop. The sudden stop problem only occurs when the recovery in the current account due to the capital outflow in the current account reaches a certain level. There is no consensus in the literature on this measure.

In the study published by Hutchison and Noy in 2006[6], the loss of income caused by sudden stops was examined and the condition for the change in the current account was sought to be at least 3% of the GDP. While they were identifying the recoveries in current accounts corresponding to 3% of the GDP as standard sudden stop, they were mentioning a big sudden stop when the same ratio was 5%. To be able to define a crisis as a sudden stop, they also laid down the condition of simultaneous appearance of a money crisis.

Sebastian Edwards who has made a lot of study on sudden stops and capital controls has took into consideration the countries which previously experienced big amount of capital inflow while defining the sudden stop.

6 Michael M. Hutchison and Ilan Noy, "Sudden Stops and the Mexican Wave: Currency Crises, Capital Flow Reversals and Output Loss in Emerging Markets", **Journal of Development Economics**, No. 79, 2006, (Online) http://people.ucsc.edu/~hutch/JDE2005.pdf, 1 March 2006.

He calls a sudden stop period if there is a sudden and a big decrease of capital inflow in countries which previously witnessed a big amount of capital inflow. But he also expects for the below mentioned criteria to be realized:[7]

- The studied country must have had capital inflow more than the third quarter of the region it belongs to during two years preceding the sudden stop.
- The decrease in the net capital inflow must be at least 5% of the GDP.

Calvo, Izquierdo and Mejia[8], have stated that the following criteria must be reached to be able to define a capital movement as a sudden stop:

- At least one of the annual based capital flow decreases must be 2 standard deviations different from the average (it indicates the unexpected character of the sudden stops).
- To be able to accept the end of a sudden stop, the annual change in the capital flow is expected to be higher than the 1 standard deviation of the average level. This condition indicates the resistance of the sudden stop.
- The beginning of the sudden stop is determined by the first year capital flow change which is 1 standard deviation under the average.

As is understood from the above mentioned criteria, a sudden stop period starts with the exceeding of the capital flow decrease by 1 standard deviation under the average level and continues with reaching of 2 standard deviations under the average level. And for the period to end, the change in the capital flow must be superior to average minus 1 standard deviation.

Significant differences can be noticed between the sudden stop notion in Calvo, Izquierdo and Mejia's study and other studies which take into consideration the current account deficit measurement calculated after a certain amount of the GDP.

7 Sebastian Edwards, "Capital Controls, Sudden Stops and Current Account Reversals", **NBER Working Paper**, No. 11170, March 2005.

8 Calvo, Izquierdo and Mejia, op.cit.

Guidotti, Sturzenegger and Villar[9] also studied the effects of the sudden stops on the income. In their study they have used a similar notion to this of Calvo, Izquierdo and Mejia but they have also included 5% of GDP change to their criteria. They have also included in their calculations the change in the current deficit on some percentage of the GDP to be able to exclude the countries which do not permit a modification in their current deficit by using their reserves during the sudden stops.

Until recently, the modelling and measuring methods in traditional sudden stop articles were based on the net capital inflow. Although gross capital inflow was used in descriptions, the researchers used net capital inflow data. As the available data usually indicate the net flows, handling the gross flows is considered as an unnecessary complication. Since the traditional international macro models also involved the net flows, there was no stimulus encouraging the researchers on gross flows. This is why net flow data was preferred in sudden stop studies in 1990s and 2000s.

The topic in 1980s was the capital flight from emerging economies. The flows of residents, formally gross capital outflows were studied. The following two decades the subject changed to sudden stops and researchers focused on sudden reversal of net flows, e.g. Calvo (1998), Calvo et al (2004 and 2008), Guidotti et al. (2004) and Cavallo and Frankel (2008).

Recently, the measures to detect sudden stops are based on gross capital flows instead of net flows. Rothenberg and Warnock (2006), Cowan et al. (2006) and Forbes and Warnock (2012) are examples of papers that stress the importance of gross flows.

Cowan, Gregorio, Micco and Neilson also suggest that the gross figures must be included in the calculations instead of net capital flows.[10] In floating exchange rate regime, the change in current account and capital account appear simultaneously, thus it becomes impossible to guess the source of the change by observing the change in the net capital flow. Besides Cowan, Gregorio, Micco and Neilson who say it is impossible to distinguish if the changes are resulting from the regulations made against the basic changes

9 Guidotti, Sturzenegger and Villar op. cit.

10 Cowan, Kevin, Jose De Gregorio, Alejandro Micco, Christopher Neilson: "Financial Diversification, Sudden Stops, and Sudden Starts", in Current Account and External Financing, Central Banking, Analysis, and Economic Policies Series Vol: 12, Central Bank of Chile, 2008.

like the terms of trade shocks or the local policy modifications or again external financial shocks, on this account propose that it is necessary to observe the gross flows instead of the net ones to determine the turnarounds or as currently said the sudden stops.

Rothenberg and Warnock (2006) pointed out to the importance of local investors' behaviour along with the non-residents' regarding the sudden reversals of capital. They emphasized that in search of sudden reversals one should concentrate on gross flows rather than net flows.[11]

> *"While net capital flows are clearly an important concept, we live in a world of substantial two-way gross capital flows and sudden stops, being a trading phenomenon, should be framed in a trading model that incorporates information asymmetries and gross flows."*

They differentiated sudden flights and true sudden stops. They define a sudden flight as an episode in which the increase in gross financial outflows is greater than the decrease in gross financial inflows over the same period. True sudden stops are related to the actions of global investors and the decrease in gross inflows exceeding the increase in gross outflows indicates a true sudden stop. In their work, first they used net flows to identify an episode following a gross analysis to separate true sudden stops from sudden flights.

The foreign investors are blamed in most of the studies conducted until now on the economic crises related to the foreign capital. With this point of view, one might get the impression that the global investors suddenly stop providing funds to the emerging market countries for a reason idiosyncratic to that country or for any other indirect reason.

Rothenberg and Warnock[12] who questioned if it would be fair to blame only the investor or if the local investors have any effects on crises have also included the local investors' behaviours in their analysis on sudden stops. Rothenberg and Warnock do not deny the role of the global investor in spreading of the crisis and, as mentioned above treat the capital outflow in two parts: *true sudden stops* and *sudden flights.* The fact they call a true sudden stop expresses the sudden leaving of foreign investors and the

11 Alexander D. Rothenberg and Francis E. Warnock, "Sudden Flight and True Sudden Stops", NBER Working Papers, No: 12726, December 2006.

12 Rothenberg and Warnock, op.cit.

sudden flight the pulling off the local investors out of the market. They show in their study that almost half of the crises handled in sudden stop literature were not sudden stops but sudden flights.

They take into consideration the variations in the gross capital outflow and the gross capital inflow while defining the sudden flight. To speak off a sudden flight, the increase in a gross outflow in a precise period must be superior to the gross inflow decrease for the same period. If this is the case, it means that this country's citizens are sending money abroad. On the other hand if the decrease in gross inflow is superior to the gross outflow increase, then it means there is a true sudden stop case due to the global investor's behaviour. Here is not expressed a situation where the emerging markets are excluded from the global capital markets. On the contrary, it is proposed that the local investor in the emerging market has large possibilities in the global markets and can revalue their funds in abroad. Rothenberg and Warnock demonstrate that compared to sudden flights, the true sudden stops create a bigger pressure on the GDP and cause more severe devaluations.

The local investors who are more informed than the foreign ones are able to guess in advance the negative shocks which might affect the local market and to leave the local market based on this information and transfer their money to the global markets.[13] Traditional sudden stop articles are evaluating these two different effects together and are considering them all as sudden stop.

Rothenberg and Warnock study is important from many angles. In studies about the sudden stops, it is usually presumed that the access of the emerging market economies to the global markets is restricted during the crisis. But Rothenberg and Warnock show that this is not true by demonstrating that the local investors are taking their internal resources abroad during the crisis and investing in global markets.

Rothenberg and Warnock have examined 28 developing markets for 1989-2005 period and determined 70 periods. Each of the countries was affected 2.5 times from the crisis periods during 16 years. When considered in this way, they express that the crises are not that frequent.

13 Rothenberg and Warnock, op.cit.

The term "capital flight" also appeared on other studies. For example Cowan and Gregorio,[14] expressed that the situation lived in Chile in 1998 was a different style of capital movement than those common to South America and highlighted the fact that there was mostly a question of capital outflow increase rather than capital inflow decrease. The local investors were increasing their foreign asset investments.

Cowan, Gregorio, Micco and Neilson also made a distinction between the sudden stop, the true sudden stop and the outflow starts.[15] Just like in the traditional literature, they are calling *sudden stop* the big declines in *net* capital inflows. When they talk about the *inflow stops* or *true sudden stops,* they refer to the big declines in gross capital inflows. And the big absolute increases in the capital outflows were defined as *outflow starts.*

As mentioned earlier the most recent works in sudden stop literature concentrate on gross flows rather than net flows. Sudden stops in inflows, sudden surges of outflows and other changes in capital flows have been questioned.

Cavallo et al (2013)[16] established a consistent taxonomy regarding the abrupt and sharp reductions in capital flows. Their study covers gross and net flows, and resident-domestic considerations. They define Gross Inflows as the flows of non-residents. Gross Outflows are the flows of residents. To calculate the Net Flows, Gross Inflows and Gross Outflows are added to each other.

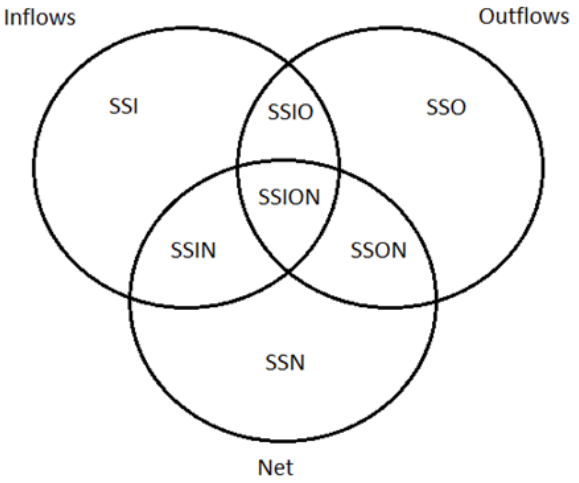
In their work the new taxonomy is presented by the aid of a Venn diagram.[17]

14 Kevin Cowan and Jose De Gregorio, "International Borrowing, Capital Controls and the Exchange Rate: Lessons From Chile", **NBER Working Paper**, No: 11382, May 2005.

15 Cowan, Gregorio, Micco and Neilson, op.cit.

16 Cavallo, Eduardo, Andrew Powell, Mathieu Pedemonte and Pilar Tavella, "A New Taxonomy of Sudden Stops: Which Sudden Stops Should Countries Be Most Concerned About?", Inter-American Development Bank, Working Paper Series No: IDB-WP-430, August 2013.

17 Cavallo, Powell, Pedemonte and Tavella, op.cit.



SSI: Sudden Stop in Gross Inflows

SSIN: Sudden Stop in Gross and Net Inflows

SSION: Sudden Stops in Gross and Net Inflows plus Sudden Starts in Gross Outflows

SSO: Sudden Starts in Gross Outflows

SSON: Sudden Starts in Gross Outflows and Sudden Stops in Net Flows

SSN: Sudden Stop in Net Flows [18]

The sudden stop literature in favour of net flows or gross flows reviewed distinct or overlapping episodes described in the new taxonomy (Distinct episodes: SSI, SSO versus SSN; overlapping episodes: SSIN, SSON and SSION). The literature focusing on stops in net flows sometimes missed the point that some of those episodes might also be a sudden stop in Gross Inflows or Gross Outflows. Similarly, sudden stop in gross flow literature did not differentiate whether the change in capital flows affect net flows.

Until the recent global crisis the sudden stop term was associated with emerging market economies regarding the net flows. Advanced economies were not believed to be prone to such sudden stops. They experienced gross flow type sudden stops. However, the latest financial crisis revealed that advanced economies can also face net flow type of sudden stops.

18 SSIO is an empty set since there cannot be a case where simultaneous large drops in Gross Inflows and large Surges in Gross Outflows that do not cause a significant drop in Net Flows.

Cowan, Gregorio, Micco and Neilson studied the behaviour of basic macroeconomic variables with a 6-year frame counting the sudden stop periods of 53 countries to be able to examine the macroeconomic results of the categorization of the sudden stops. Especially subjects like growth in production, investment, export, exchange rates, internal loan and reserves were handled. The results are indicated below:[19]

- GDP decreases more during inflow stop periods compared to outflow start periods.
- A similar development is in question in gross capital formation. The investment decrease in the countries which experience an inflow stop is greater (Because the decrease in GDP is also greater).
- The share of the export in GDP is going up for two consecutive periods following the sudden stop. This is due to the loss of value of the real exchange rate and to the change in the terms of trade. The increase in the export helps to relieve the problems resulting from the sudden stops. The conclusion to draw is that the countries which are more open to outside (openness is calculated with the export share in GDP) suffer less from the sudden stops in capital inflow.
- In both periods the bank loans and the reserves decrease. The decrease during the recession periods in capital inflows is higher than the periods where the capital goes out.

19 Cowan, Gregorio, Micco and Neilson, op.cit.

1.2. Factors Contributing to Sudden Stop

1.2.1. *Structural Weakness*

Calvo, Izquierdo and Mejia[20] suggest that the fiscal discipline[21] and the soft exchange rate pegs[22] are not enough to explain the current crises and they draw attention to the structural weaknesses which cause fragility in emerging markets against the shocks and of which they suffer. They especially accentuate on the real exchange rate (the price of the foreign trade goods relative to the price of non-foreign trade goods).

An increase in the real exchange rate will cause debt payment issues to the sectors producing non-foreign trade goods. The problems occurred at the refunding of the credits will create a suspicion on the liquidity of the banking system and even more maybe create a "bank run" which will cause bankruptcies.

The sudden stops which will lead to important cuts in the credits will bring along a decrease in aggregate demand and then a big increase in real exchange rate. Thus a sudden stop will transform into a self-feeding mechanism.

The conclusions of the empirical study conducted by Calvo, Izquierdo and Mejia[23] support the opinion which suggests that the real exchange rate fluctuations and the domestic exchange rate liability are between the important determinants of the sudden stop possibility.

In his study, Arteta has tried to explain the relation between domestic exchange rate liabilities and the exchange rate crises and inspected on how the financial vulnerability is affected when the foreign exchange deposits and foreign currency loans have an important place in the banking system. He could not determine a significant relation between the high exchange rate liability and the banking crisis nor the currency.

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20 Calvo, Izquierdo and Mejia, op.cit.

21 The explanation of lack of fiscal discipline made for the 1980s South America debt crisis is insufficient to explain the crisis which started in South East Asian countries. For example the pre-crisis public debt rate to the GDP of Korea –one of the countries suffering from the crisis- was around 10%, which is much less than many developed countries.

22 It is suggested that the countries which aimed an unsustainable exchange rate peg suffer from balance of payment crisis if they do not renounce to this policy on time. But this suggestion is not enough to explain the real meltdown like the production and unemployment.

23 Calvo, Izquierdo and Mejia, op.cit.

Although they are not interested in foreign currency crises, Calvo, Izquierdo and Mejia indicated that Arteta's conclusion is wrong and the timing of the foreign currency crises can be much different from those of the sudden stops.[24] The model where Calvo, Izquierdo and Mejia define the variables determining the changes in real exchange rate is. The researchers have sought the answers to the following question in their study:

- Is there any difference between the emerging markets and developed countries regarding the frequency of the sudden stops?
- Is the large devaluation an inevitable situation against the unexpected inflow returns or is it usually a case peculiar to the emerging markets?
- Do the sudden stops occur before or after the large devaluations?
- Do the sudden stops occur simultaneously in many countries (do they point at the negations or contagiousness in world capital markets) or are they individual cases?

The sudden stop statistics studied by Calvo, Izquierdo and Mejia indicate that 37% of the emerging market devaluation develops independently from the sudden stop and the same figure is 83% for the developed countries. This shows that the capital markets do not close their doors to the developed countries during the currency crises unlike the emerging markets.[25]

Although they could not find concrete information on if the return of capital flow or the devaluation is first realized when close to the sudden stop period (Granger-causality test does not provide final result), they have achieved some findings proving that the capital flow returns come before the devaluation. 63% of the returns occurred before the devaluation.

Another subject studied by Calvo, Izquierdo and Mejia is how macroeconomic measures like real interest rates, currency reserves and current account balance act during the sudden stop periods. The real interest rates ran severely high especially in the emerging markets. Other countries also hiked interest rates. When the currency reserves are examined, it is understood that the countries turn to their currency reserves to slow down the effect of the sudden stop on the current deficit.

24 Calvo, Izquierdo and Mejia, op.cit
25 Calvo, Izquierdo and Mejia, op.cit.

The study realized by Calvo, Izquierdo and Mejia in 32 countries concludes that:

- the high rate real currency fluctuation along with the sudden stops is mostly a typical fact of the emerging markets,
- that the sudden stops are simultaneously observed in countries which are different from each other from many angles,
- the reason of the fragility of the developing countries against the real currency fluctuations is the obligation of making big adjustments at the absorbing of the foreign trade goods and/or the reaching a high rate of the foreign money in between the domestic obligations in the banking system.

1.2.2. *External Shocks*

The emerging market economies always run current deficits to be able to gain the resources they need for the growth and to maintain their consumption level. And to be able to maintain the current deficits, there must be a continuous external inflow. But it is also a common situation for the countries without structural problems to experience sudden stops. The reason for those stops is the developments in the outside world.

The change of the difference between the internal rate of return and the external rate of return in favour of the external rates cause the flight of the capital from the developing countries towards the developed countries. The change in international interest rates besides, the change in the appetite for risk of the financial markets can also cause sudden leaving of the capital looking for short term speculative profit from the developing countries. In such periods, the capital prefers to move on to safer markets without taking into consideration the structural situation of the country it invests in. Although their yield is lower, some moving towards the treasury securities of the United States of America can be observed. Another external reason is the spread of the crises occurred in developing countries to the other developing countries. Similar or not, a crisis which occurred in the emerging market economies can spread to other emerging markets whether in the same region or not.

Calvo points at the global capital markets as the responsible actor of the sudden stops formed in the emerging market economies.[26] He says that the South American crises are related to the public debts which are structural problems, in other words they are in debt crises but there is no such debt problem in emerging Asia.

Calvo suggests that it is not possible to master the difficulty with the politics applied by the emerging market economies against the external crises and that a global regulation is necessary.[27] He suggests the creation of an Emerging Market Fund in charge of the stability of the emerging market bond prices and of an index measuring the spreads of these bonds (in other word some kind of emerging market central bank which will have the highest authority). The high fluctuation displayed in the EMBI index created by J.P. Morgan after the Russian crisis suggests that the high fluctuation problem is global.

1.3. Which Capital?

What kind of capital flow can provide protection against crises is another subject studied in sudden stop literature. Fernandez-Arias and Hausmann[28] have studied the relation between the frequency of the crises and the composition of the capital flows and determined a small connection between the direct foreign investments and the crises in the developing countries.

Levchenko and Mauro[29] also examined the behaviours of different capital movements in between 1970-2003 where they were superior to 5% of the GDP during the sudden stop periods. The types of the capital movements have different reactions during the sudden stop periods. Although the direct foreign investments constitute an important part in total financial flows, they present a quite stabile situation and play almost no part in sudden stops. When we consider the important part of the direct

26 Guillermo A. Calvo, "Crises in Emerging Market Economies: A Global Perspective", **NBER Working Paper**, No. 11305, 2005.

27 Calvo, 2005, op.cit.

28 Eduardo Fernandez-Arias and Ricardo Hausmann, "Is Foreign Direct Investment a Safer Form of Financing", **Emerging Markets Review**, vol. 2, 2001.

29 Andrei Levchenko and Paolo Mauro, "Do Some Financial Flows Help Protect From Sudden Stop?", **IMF Working Paper**, No WP/06/202, 2006.

foreign investment size in the total movement, this situation constitutes an important result. Similarly the role of the portfolio investments during the sudden stops is also restrained. Although a decrease occurs in portfolio investments, the recovery is quite fast after the sudden stop. Serious decreases occur in bank lending and official flows and there is no recovery for some years following the sudden stops.

Ozan Sula studied the capital movements of 38 emerging market economies in between 1990-2003 and worked on the possibility of appearance of the sudden stops.[30]. Sula questioned in his study if the intense capital inflow directly or indirectly affects the sudden stop probability, if the weak basic economic indicators increase the exposure to the flights and if the capital inflow compositions have an effect on the sudden stops. He determined at the end of his empirical study that the intense capital inflows are the precursors of sudden stop crises, that the sudden stop probability is increased when there are big current deficits or the country's money is overvalued and the capital composition is important. While the portfolio investments and private sector borrowings are increasing the sudden stop probability, there is no direct relation between the direct foreign capital and the sudden stop.

1.4. Openness and Crisis Probability

There are two totally different points of view on if the free movement of the capital in between the countries triggers the crises or not. Some economists suggest that the free entry and exit of the capital to/from the emerging market economies destabilize those countries macroeconomic balances and increase the financial vulnerability. For example Stiglitz thinks that the liberalization of the capital account is the most important factor causing crises.[31] Stiglitz indicates that the pressure of lifting of the controls capital movements exercised on the developing countries and transition economies is a big mistake and that the crises in 1990s appeared after relaxing the controls. According to Stiglitz, the reason for China and

30 Ozan Sula, "Surges and Sudden Stops of Capital Flows to Emerging Markets", **Munich Personel RePec Archive Paper** No. 383, 2006, (Online) http://mpra.ub.uni-muenchen.de/383/, 30 September 2007.

31 Joseph E. Stiglitz, **Globalization and its discontents**, Translation: Arzu Taşçıoğlu and Deniz Vural, 1. ed., Istanbul, Plan B Editions, 2002, s.121.

India not to be that affected from the East Asian and other following crises is their disallowance of free movement of the capital.

Edwards studied the relation between the capital movement restrictions and external crises by using many data from several countries.[32] He especially worked on the sudden cut of the capital flow and the current account changes and has focused on two basic questions:

- Can capital controls (which can be described as the sudden stop of the capital inflows or the change of the current account movements) reduce the possibility of occurrence of a big external crisis?
- If there is already a crisis, would the countries restricting the capital movement are less damaged than the countries which do not apply those controls? (Here the damage is measured with the growth decrease.)

While trying to find an answer to these questions above, Edwards talks about the difficulty of measuring the level of liberty of the capital movement and especially indicates that creating a measuring method which allows a comparison in between the countries and which shows the change according to time is quite hard. He has examined the studies which try to measure the free movement scale of the capital and created a new index by joining together two of the liberty indexes formed before and some country-based information.[33] There was no systematic finding at the end of the application which indicates that the countries where capital has freedom of movement are subject to more crises than others.

Frankel and Cavallo have studied the relation between the liberty of trade and sensibility against the sudden stops.[34] They suggest that the economies trading less with other countries are more subject to sudden stops and money crises. The increase in free trade is decreasing the sudden stop probability. A trade increase of 10% of the GDP can reduce the sudden stop possibility by 32% when all other variables are fixed.

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32 Sebastian Edwards, 2005, op.cit.

33 Edwards, 2005 op.cit.

34 Jeffrey A. Frankel and Eduardo A. Cavallo, "Does Openness to Trade Make Countries More Vulnerable to Sudden Stops, or Less? Using Gravity to Establish Causality", **NBER Working Paper** No. 10957, 2004.

1.5. Short Term Effects of the Sudden Stops

Many studies were made on the effects of the changes on balance of payments or currency crises and the changes in current account as a result of the frequency of economic crises as of 1990s. As some of these studies proved that the currency crises have a significant effect on the production (outcome), some others tried to measure the effects of the changes in current accounts on the growth. For example Edward (2002) study concludes that the changes in current accounts have negative effect on the investment and growth. But another previous study conducted by Milesi-Ferretti and Razin could not find any conclusive evidence about the interaction between the change in current account and growth.

Traditional studies usually accentuate on the long term effects of the crises and exclude the short term changes. As the sudden stops represent the sudden cuts in the foreign inflow, Guidotti, Sturzenegger and Villar (2004) preferred to study on the short term effects of the sudden stops.

2. CAPITAL CONTROL AS A MEASURE AGAINST SUDDEN STOP

The Asian crisis of 1997 followed by the Russian crisis of 1998 together with the recent global financial crisis have highlighted some downsides of financial liberalisation. Increase in exchange rate volatility, exchange rate misalignments and flight of capital (leaving macroeconomic problems behind) have been observed. Inter connected global capital markets are still warranted but with some caveats. Some degree of policy intervention in some cases is accepted. If capital flows cause asset price bubbles, or high levels of maturity mismatches, or if sudden reversals of flows lead to macroeconomic problems such as debt crisis, banking crisis or a downturn in economic activity then restrictions on magnitude and/or composition of foreign flows are regarded as prudent strategies.

Three types of studies are seen lately about the use of capital controls.[35] In one group nominal wages are rigid and a fixed exchange rate prevails. Output fluctuates due to rigid nominal wages and monetary policy is ineffective to alter the prices. In such an environment capital controls on

35 Eichengreen, Barry and Andrew Rose, "Capital controls in the 21st Century", Center for Economic Policy Research, Policy Insight No: 72, 2014

inflows should be used temporarily to flatten wage rises. The rationale behind this is to avoid the adverse effects of wages rigidity when capital flows stop. These studies suggest countercyclical use of controls. The second set of studies sees the controls as a tool to manipulate the international terms of trade. This can be the case if taxes on import and export and subsidies are not available policies. Then capital controls are used as the second best policy tool to replace the first-best policy (i.e. taxes and subsidies). Some other studies recommend the use of capital controls to support the financial stability. Again it is the second best option where the first best policy option cannot be implemented for some reason. The capital surge causing higher asset prices motivates banks to lend more since collateral values are higher. If banks extend their lending especially riskier loans, leading to expanded balance sheets, the regulatory authority should increase surveillance and tighten regulation to mitigate the risk of sudden reversal of capital. If this first best option is not available then countries may employ controls on capital inflows. The studies regardless of the rationale behind the controls suggest them as second best policy choices. The problem here is the lack of experience of using controls as alternatives. Countries rarely resort to capital controls in response to short term fluctuations in output, the terms of trade and the financial instability. Furthermore, if applied they have persistent characteristics, not adjusted as studies suggest.

Eichengreen and Rose looked for a link between controls and inflation, GDP growth, the terms of trade, the lagged capital account-GDP ratio, and the domestic credit growth (adjusted for inflation). They found out that changes in those variables, except domestic credit growth, do not affect the decision to impose or remove controls. When credit growth speeds up governments relax or remove controls which is contrary to macro prudential logic would offer. Controls move slowly. Is it because of slowly changing characteristics of countries such as level of financial markets' depth, the strength of democratic checks and balances, quality of regulatory institutions? They found some evidence that these factors could be responsible for slow moving controls.

They argue that initial imposition of controls may send adverse signal to the market. People may think that the first best policy is unavailable due to some weaknesses in the economy (an example could be the perception of

a fragile banking system). If there exists a pre-defined and well established control mechanism which were used beforehand then applying capital controls will be less costly. The authors' favour a pre-defined controls even they do not believe that the controls are likely to be fully effective.

Rather than focusing on the outcome of capital controls, Eichengreen and Rose investigated the interactions between the controls and the macroeconomic variables. The relationship do not seem robust. This implies that controls are useless. They state that there is a relationship between controls and the level of democracy, the depth and development level of financial markets, and the sophistication level of the regulatory authority. It is a negative correlation. Moreover, these features and controls are slow changing phenomena.

A recent work conducted by Forbes and Klein (2015) also examines the outcomes of different policy measures against capital flows. They concentrate on two big crises, Asian crisis and the recent global crisis. Although they are different in nature, one being more regional and country-specific (affecting emerging economies mainly), the other being more global (affecting both advanced and emerging economies) the authors examine the consequences of different policy responses implemented. They try to exhibit how GDP growth, unemployment, and inflation are changed as a result of the measures taken. The analysis employs four policy responses to sudden stops, major reserve sales, large currency depreciation, substantial interest rate increases, and new controls on capital outflows. They adopt a propensity-score matching methodology to address the selection bias stemmed from the country-specific differences and difficulties controlling these across countries under the limited set of observable statistics. By applying this methodology which is new to international macroeconomics they construct a counterfactual for each major policy response for each country.[36] Countries and episodes in which a certain policy is applied are matched with countries and episodes in which that avenue is not preferred. After such a matching, the key target variables such as GDP growth, unemployment, and inflation in countries that applied a certain policy are compared with the respective outcomes for the matched countries that had similar characteristics but did not implemented the policy in question.

36 Forbes, Kristin and Michael Klein, "Pick Your Poison: The Choices and Consequences of Policy Responses to Crises", NBER Working Paper, No: 20987, 2015.

The method was used for each four policy responses for 1997-1998 crisis and the recent global crisis. They came up with two main findings. Firstly large currency depreciations and major reserve sales support GDP growth during crisis periods compared to counterfactuals. Secondly, the growth is decreased initially followed by a boost about a year later. The other two policy choices, increases in interest rates and capital controls on outflows return no benefit since they reduce GDP growth and do not alter inflation significantly.

This work is important regarding the considerations of selection bias problem. The adoption of propensity score matching methodology that is becoming a common approach in micro econometrics opens up a new line of examination path of "what-if" problem for macro concerns for policy designers. By evaluating the results obtained through propensity score matching methodology one should be careful about the size of the data since the methodology is often called a "data-hungry method".[37] Therefore, as authors state in their conclusion these results should be interpreted cautiously due to limitations resulting from small sample sizes (Forbes and Klein 2015). One should not jump to the conclusion that capital controls against sudden stops are bad policy choices.

There are many studies investigating the relationship between capital flows and economic problems of emerging countries. Gupta et al. (2003) find that large scale of capital inflows heralds an output loss. Calvo et al. (2004) show that real exchange rate fluctuations along with domestic liability dollarization are important factors in experiencing sudden stops in emerging countries. Some other works suggest some forms of capital controls to limit instability in financial system (Eichengreen 2001, Arteta, Eichengreen and Wyplosz 2001).

Magud, Reinhart and Rogoff (2011) point out in their study that there are some problems in capital controls literature. Those issues make it highly difficult to compare across theoretical and empirical studies. The problems include:

- There is no consensus on theoretical structure of macroeconomic effects of controls.

37 Heinrich, Carolyn, Alessandro Maffioli and Gonzalo Vazquez, "A Primer for Applying Propensity-Score Matching", Inter American Development Bank, Technical Notes, 2010.

- Controls imposed vary significantly across countries.
- There is an ambiguity in defining success.
- The empirical studies use different methodologies and an excessive significance is attributed to Chile and Malaysia cases.

They reviewed capital controls literature and selected some well-known studies to analyse the effectiveness of control policies. They concentrated on four issues capital control may alter, the volume of capital flows, the composition of capital flows, reduction of pressures on real exchange rate and room for a more independent monetary policy. They constructed two indices from the selected works, capital control effectiveness index and weighted capital control effectiveness index. The latter one took the methodological rigor applied in those studies into account. By using a portfolio balance approach they model the effects of imposing controls on short term flows. They found that the inflow controls were effective in altering the composition of flows from short to longer maturities. Inflow controls were able to make monetary policy more independent, the pressure on real exchange rates was lighter. On the other hand, inflow controls were not effective in reducing the volume of net flows.

Regarding outflow controls they found that in Malaysia the controls had reduced outflows and might have given room for more independent monetary policy. As for other countries imposed controls on outflows it is difficult to talk about the success in controlling outflows either in terms of changing the volume or having more independent monetary policy.

2.1. Long Term Permanent or Short Term Episodic?

Until Klein's paper (2012) there were no distinction between long term permanent and short term episodic capital controls. Klein's paper fills this gap. He uses a new data set[38] of various countries that differentiates between controls on inflows and outflows over a 15 year period (1995-2010). This extended new data set is also a contribution to the empirical literature.

38 The author extends the data used by Schindler (2009) to include the period of 2006-2010.

The author compares the permanent and temporary controls (walls against gates) to see which one is more effective. The controls like China imposed resemble a wall. The long standing existence of capital controls enables almost no way for evasion since they encompass a broad range of assets and the financial markets are underdeveloped to produce by pass tools. Moreover, these countries invested in the institutions which oversight the capital movements and take the necessary actions to prevent avoidance in a timely manner.

The short term and episode related controls of capital flows impose measures on a limited set of assets. Thus the avoidance is much easier. There is also a risk of closing the gate late or not tight enough. Furthermore, he argues that long term controls implemented widespread may have some effect in reducing financial vulnerability but short term episodic controls will not. This finding is contrary to what IMF suggests.[39] Another result he came up with is that currency appreciations are not moderated significantly by episodic controls.

Although it makes an important contribution to capital controls literature by differentiating long and short term measures the main challenge the paper faces is about timing and endogeneity. The controls are used at an annual frequency where the controls in practice are often imposed, adjusted and removed at higher frequencies.

The endogeneity arises since capital controls are generally resorted in response to changes in capital inflows and/or exchange rate. So, capital controls themselves are endogenous variables. Lagging the variables to overcome the endogeneity problem may not be a remedy under the frequency issue.

On the effects of GDP growth he looks for a faster GDP growth associated with controls. He finds that the countries with long-standing controls have higher growth in GDP. Episodic controls are not good enough to boost GDP compared to long term ones.

Klein's argument that the theories recommending capital controls predict higher GDP growth shortly after the implementation is wrong. Expecting a higher growth in GDP right after the imposition of controls

39 IMF 2010, IMF Staff Position Note

is problematic. In the short term, available credit will be lower due to restrictions on capital inflows, which in turn will lower economic activity. Therefore a decrease in GDP growth level shortly after the capital controls is not a surprise.

In an IMF Staff Discussion Note Ostry and others (Ostry et al., 2011) admit that capital controls can be applied against inflow surges, but with a caveat. There has to be certain circumstances. Countries with strong currencies, adequate reserves, no public debt considerations may impose controls. Financial stability concerns may also dictate some controls where prudential tools are insufficient or ineffective.

Before deploying controls against inflow surges macroeconomic policy options should be consumed primarily. Controls should not be a replacement for macro prudential policies.

To handle capital inflows prudential regulation can be used, unless the inflows by pass the regulation. Capital controls may be the choice for policymakers in case of circumvention of regulation which cannot be widened quickly and effectively enough to cover the leak.

Architecture of controls should be bespoke. If macro concerns arise due to inflows, the controls need to be broad and temporary. If the concerns are on the financial stability then controls are to be imposed on riskiest flows in the form of administrative measures.

With this discussion note IMF explicitly steps back from opposing controls. However, only inflow regulating controls are deemed to be licit. Moreover, the controls can be appropriate only under certain macroeconomic conditions where prudential measures are insufficient and/or ineffective to allow the economy absorbing the inflow surges.

2.2. Another Reason for Capital Controls: Externalities of Small Market Participants

Korinek (2011) points to the situation where financial amplification

effects[40] and the behaviour of market players who do not internalise their contribution to financial instability are common phenomena in nowadays emerging market crises. To overcome the distorted decisions of market participants towards excessive risk taking, prudential controls on capital flows can be utilised.

Small market participants have no individual effect on either exchange rates or asset prices. So, they take these variables as given. They neglect the effects of their joint behaviour on prices and contribute to the financial fragility in the economy. They impose externalities by not internalising their input to financial amplification. These externalities lead adverse decisions such as excessive debt levels, foreign debt rather than foreign direct investment and short term maturities.

The focus of Korinek's (2011) paper is on prudential capital controls rather than macroprudential measures to be able to discriminate foreign and domestic investors. Welfare maximising capital controls on inflows are the subject of the study.

When markets are incomplete and agents do not behave competitively a change in their demand or supply leads to pecuniary externalities. Korinek in his study sets up a model in which the market borrowing is constrained due to the value of the borrower's collateral. When the constraint is binding a similar effect to market incompleteness is observed. To internalise the pecuniary externality a Pigovian tax on debt inflows is needed. The level of tax should be set at such a level that the borrowing should not be discouraged but the magnitude of crises should be reduced (not avoided). The tax is supposed to close the gap between the private valuation and the social valuation of the cost of debt. Unremunerated reserve requirement which imposes an opportunity cost on lenders is an alternative measure to the Pigovian tax.

The prudential capital controls that aim to mitigate the adverse effects of a financial crisis are in an ex-ante manner in Korinek's study. However,

40 Financial amplification can be defined by a feedback loop, when an emerging market is exposed to an external shock aggregate demand falls, currency depreciates and asset prices decline. These impacts worsen the balance sheets (value of collaterals and net worth decline.) which in turn restricts firms' access to external finance. This leads firms to reduce their spending and aggregate demand declines further. As a consequence of this feedback loop economic shocks result magnified effects on macroeconomic aggregates.

there are some studies that combine ex-ante and ex-post controls to minimise the effects of financial crises under certain circumstances.

Korinek conducted a theoretic study rather than an empirical one. The success is defined as the internalisation of externalities imposed to the economy by the behaviours of individuals. To overcome the externality problem an ex-ante control in the form of a Pigovian tax is proposed. On the other hand he admits that a mixture of ex-ante and ex-post controls can be utilised as there exist some studies suggesting such a combination. The theoretical model he established suggests a countercyclical Pigovian tax on debt inflows in a boom to reduce the risk and severity of a downturn. The optimal tax is to be levied primarily on short term foreign debt which is not a productive finance instrument growth-wise. He favours permanent but non-static controls on inflows. Even he does not mention about a clear distinction between foreign and domestic investors, he warns about the fast withdrawal of foreign funds from the market which affects domestic investors negatively. Therefore he recommends macroprudential controls on inflows instead of macroeconomic measures. This suggestion actually is a sign of aiming foreign investors implicitly.

2.3. What Kind of Control Apply and When to Apply?

The permanent control application to reduce the volatility in foreign capital movements seems like a reasonable approach. It is known by other countries' experiences that the long term control applications are not effective and have a short term effect. As the markets find somehow the ways to avoid the controls in long-term applications, it is necessary to put the restrictions in service with a proactive approach. Today the generally accepted approach is to put some restrictions on the capital inflows. Although it knows what kind of price it must pay before entering the country, the foreign capital is taking its investment decisions according to this information. As putting sudden restrictions on capital outflows without warning might cause reactions (panic and crisis if the restrictions on the outflow were already announced) as they would impose costs to the investors they did not yet take into consideration and might even affect negatively the investment willing of the investors in the country. Thus it seems more reasonable to apply controls on inflows instead of outflows.

To be able to gain stability on capital inflows and reduce the volatility, the controlling authorities must proactively interfere in the market.

Rule 1: *The controls can start on periods where the short term speculative capital inflow is one standard deviation above the average and they can be stopped when the capital inflow is below half standard deviation level of the average. Thus the volatility in capital inflows will be smoothened.*

The information about if the foreign capital inflows found according to *Rule 1* reached a certain level of GDP or not is also an important criteria to be taken into consideration. When the reaching certain level of the GDP criteria is not taken into consideration and the decision is only made based on the volatility, then a very restrictive method will be used on capital inflows and this might cause the total flight of the foreign capital from the country. Therefore, another condition should be added to *Rule 1*.

Rule 2: *The foreign capital inflows should not exceed the 2% of the previous quarter GDP.*

The restrictions on the short-term foreign capital should not be automatically put in circuit if both of the above mentioned rules are simultaneously provided. If the conditions determined by the method occur, the authorities must decide what kind of measure to apply and for how long by following closely the developments in the market.

2.4. Which Controls to Apply? Some Suggestions

The stock market operations are stopped in case of extreme volatility in order to slow down the market decrease and reduce the panic atmosphere. This system is called “circuit breaker”. The circuit breaker logic in stock markets can also be used for short term capital inflows. The rules mentioned in the previous section and imposing some restrictions on the inflows can be evaluated as circuit breaker criteria. If the capital inflow volatility surpasses a certain level (Rule 1) and if the capital inflow amount reaches a certain level of the GDP (Rule 2), imposing taxes on the new capital will act as a circuit breaker. Below are mentioned some control methods which can be applied capital inflows. Those measures can be applied alone or together.

Tax

It may be possible to impose some tax duty on the foreign exchange transactions and stock market operations to reduce the rate of return expected by the capital and to slow down the capital inflow.

Invaluable Reserve Liability

A control mechanism similar to that of Chile can be adopted to deter the short-term capital inflow. As blockage of a certain amount of the foreign capital inflow in a current non-interest earning account in the Central Bank will function as a duty, the capital return will decrease. The authorities must evaluate the current situation before deciding on which kind of capital inflow they will apply the invaluable reserve liability. For example, if a remarkable development is in question in fixed income security from portfolio investments, then only some of the short term capital inflow can be blocked in order to invest in the fixed income security. If a movement which will increase the volatility is observed in the foreign loans, then it can be requested to keep some of the external loans in a non-interest earning account in the Central Bank. The minimum period for this kind of capital flows to stay in the country must be determined to avoid the hiding of the short term capital behind the direct foreign investments. The capital that wishes to leave the country before due time must be considered as a short-term capital and must be taxed in accordance with the invaluable reserve liability if the date is corresponding to the control application period.

CONCLUSION

Most of the academic studies on capital controls are cross country based. Researchers sometimes drive conclusions on the success of the controls by disregarding the prevailing dynamics of specific countries or the global economy. People against the controls point to the ineffective applications and infer that there is no need for control measures. Likewise, advocates of the capital controls pick the successful examples and base their recommendations for emerging economies on these practices.

Another issue of cross country works is the selection problem. Countries that applied episode related controls have different characteristics than those that employ permanent restrictions and also than those with no controls

at all. Different selection among these may lead to different outcomes. Therefore, one should be careful about interpreting the regression results as efficacy or failure of the capital controls.

One more difficulty to be overcome with is whether the controls are imposed properly and there exists a leeway for large evasions. If they are not imposed in a proper way and by passing the controls is possible and easy then one cannot jump to the conclusion that episodic controls are ineffective.

In short, each case is unique and the imposition of capital controls needs to be case specific. The target should be providing some time to authorities to tidy up their backyards in turmoil times. By controlling the capital flows it is possible for countries to develop their institutions, deepen their market and financial system. Capital controls are not a panacea but they give emerging markets opportunity and time to implement their structural reforms in a timely manner by mitigating the negative effects of financial crises. Therefore, policy makers should not exclude capital controls from their macroprudential toolbox.

Regarding their fight with the sudden stops, some countries have chosen to accept the IMF support while others have preferred to reduce the effects of the crises by putting restrictions on the capital movements. The Malaysian-type controls were trying to prevent the capital outflow while Chile-type controls were aiming to slow down the capital inflow. Even the most liberalist economists and institutions like IMF express the problems of fast liberalization in the capital account and accept that the Chile-type controls can be applied on some periods. The empirical studies have shown that the capital controls are only effective if their scope is large and if they are short-termed. Otherwise the market participants discover the legal and illegal means to avoid the controls and turn the restrictions on the capital ineffective.

The appliance of some controls during some periods to reduce the volatility of the short term capital looking for investment possibilities, the taking of some measures to increase the cost of the capital in periods where the capital inflow starts surpassing the decided criteria must be considered as a policy which will stabilize the growth. The preventive measure in the capital inflow should not automatically be put into application and their

application time, scope and durations must be planned under the initiative of the authorities. This study suggests putting restrictions on the foreign capital inflow only if two rules are provided. According to the first rule, the controls should be applied when the capital inflows are one standard deviation above the average and they should be stopped when the capital inflow is half standard deviation below the average. The second rule suggests that the capital inflow must reach at least 2% of the GDP for the first rule to be applied.

As the short-term foreign capital enters the country via finance markets and the banks constitute a very important part of the financial markets, it is important to accentuate the fragility of the banking sector against the capital inflow. The maturity mismatch, the money mismatch and all the risks which might result from the derivative instruments used to minimise those risks which increased with the foreign capital inflow must be determined correctly and the necessary measures should be taken. The intense competition between the banks may cause a bad administration of the said risks by the banks and some careless attitude. In this case, the effects of any internal and/or external shock will be very heavy.

The capital controls are just short-term measures and they are not enough by themselves. In the long term, it is necessary to apply reasonable and responsible macroeconomic policies to reduce the volatility in the capital flow and better governance as well as stronger institutions is needed. The country's economy will be strengthened and the vulnerability against the crises will be decreased only if these conditions are provided.

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