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An Empirical Approach to the Political Economy of Financial Crisis

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JUAN RICARDO PERILLA JIMENEZ

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Members of the Examining Committee:

Karel Jansen

Wil Hout

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An Empirical Approach to the Political Economy of Financial Crises.*

By

Juan Ricardo Perilla Jiménez. §

Abstract

The paper presents a model of political loss to give account of the interrelationships between the political nature of economic decisions and the degree of implementation of Fund Supported Programs, and the influence of these elements on the probability of financial disturbances. Two different definitions of crises, in terms of currency and balance of payments are analyzed to give account of the differences in the explanatory power of political factors to the definition of this event. In the econometric approach of the theoretical model probit and tobit models are used on a sample of 63 countries between 1984 I and 2000 IV. The evidence shows that while political factors are robust to explain currency crises, they are more ambiguous to explain balance of payments crises. Electoral journeys are found to affect positively and significantly the probability of currency crises while strong democracies and left wing partisanships are found to affect negatively, although not significantly this probability. Finally the incompleteness of programs for policy reform are found to affect positively, though not significantly the probability of both currency and balance of payments downturns.

Keywords: IMF programs, Financial crises, Truncated and censored models

JEL Classification: F33, F42, O19

§ Institute of Social Studies, The Hague, the Netherlands. E-mail: ipe0409@iss.nl and jperilla2002@yahoo.com

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1. Introduction

Since the beginning of the 1990s the world economy has experienced a growing mobility in international capital flows and a deeper preference of country's governments for market conforming policies as a way to maintain their position in the international competition for financial resources. Undoubtedly those trends neither are new nor work in a vacuum, and certainly are not costless; Latin American and Asian countries are common places for examples where reforms have been seen highly unpopular and their implementation has been possible only after passing through the filter of intense political debates and social riots¹ and, no doubt, the adoption of financial liberalization policies do not work in isolation of the international system, access to international credit compels countries' governments to prove their credibility by committing to stable and sound economic policies. These trends, in sum, reflect the interaction between domestic political constraints and pressures imposed by international political relations in an intricate game where financial crisis becomes the penalty and represents the core concern for policymakers at both national and international levels.

The continuous risk of economic failure whenever international investors perceive any lack of compliance with market principles, the desire to safeguard the country's interests in the international arena and the national pressure of interest groups turns decision making procedures in a complex bargaining between economic targets and political objectives. Political economy and financial crisis literature offer a considerable body of analyses and evidence which suggests how pure political elements matters in the explanation of financial disturbances. Nevertheless, if the "political naiveté"² has been overcome in the economic analysis of financial crisis (Strange 2002), still there is a lack of useful stylized facts which could be used to anticipate its occurrence and to reduce the perplexity in the policy making of preventive measures.

A feasible explanation for this lack of conclusiveness could be in the definition of crisis itself. A broad number of empirical studies in this context define financial crisis in terms of currency crises or alternatively a combination of currency and balance of payment crises. While not necessarily inaccurate, this trend can dismiss important hints in terms of causality and transmission mechanisms among these types of crisis. In practice, exchange rate liberalization typically is a preferred policy over reserves expenditures to defend the parity in developing countries facing speculative attacks. Technical requirements, reserve adequacy policies and interest rate controls are known to play a important role in this issue which help to explain why has been more frequent the case for currency than for balance of payment downturns. Recently, research in this regard by Ishihara provided insightful findings on the modus operandi and reinforcing mechanisms of these types of crises and governance issues which suggest that political (in)stability affects differently different crisis types, that one crisis type generally start to affect another one and that political (in)stability itself is not independent of the occurrence of crisis (Ishihara 2004).

Furthermore, the interaction between political issues and financial disturbances can not be analysed outside of the influence of multilateral organizations. The conditions under which political constraints can influence the IMF behaviour in developing countries have been examined enough broadly from theoretical and empirical perspectives by both economics and politicians and is relatively of less contention.³ Nevertheless, its effectiveness in the resolution of different crisis episodes has been highly controversial and the debate conducted much more on the normative ground than on the positive one, which has fuelled in many cases critical speculation and hopeless demands for a new international financial architecture rather than a more feasible call for the modification of current status quo.

A much lesser theoretical or empirical attempt has been even done for assessing the relationship between IMF programs and financial crisis. Typically, this relationship follows IMF articles of agreement, crises lead affected countries to adopt reform programs in change for financial support conducive to surmount the event; consequently, the assessment of these programs is based on performance of economic indicators after implementation. The argument, nevertheless, offers several pitfalls: it barely addresses the critic that IMF mismanagement made past crises even worst, incorrectly assumes that programs are fully implemented/completed and attached loans fully drawn, it hardly meets the complaint that political constraints influence programs implementation/completion and consequently effectiveness in deterring crisis, and also ignores the possibility for moral hazard and recidivism practices by borrower countries.⁴

The aim of this paper is twofold, firstly it is intended to contribute to the explanation of which and how political economy variables influence the probability of financial crises. Dealing with this purpose I test for example the influence of government partisanship, electoral dates, government strength, democracy, and special interest groups on the probability of currency crises. Furthermore, I test if the influence of these political elements is robust to the definition of crisis in terms of Balance of Payments.⁵ A better understanding of these relationships makes sense for the academic assessment of the link between economy and politics in the prediction of financial crisis and for the enhancement of policy suggestions to decision makers dealing with crisis anticipation and prevention.

Secondly, I investigate on the side of political determinants of crisis the influence of IMF supported programs (FSP).⁶ The political nature of this influence is derived from the interaction between domestic political interests and political factors in IMF lending practices, particularly the “political proximity” a country’s government has to the United States as the main IMF shareholder with veto power on IMF lending behaviour.⁷ The interaction of political factors is assumed to affect the degree of FSP implementation/completion by participant countries. Consequently, I investigate if a reduction in implementation or the no completion of programs is associated with a high probability of financial

disasters. Again, a better understanding of the relationship between crisis and FSP is important to address the academic discussion and to validate the fairness of the complaint for a new international architecture.

The after match of these issues brings to a practical question; it is how international financial architecture can be conducive to a better stage of economic development. I look into this issue by analyzing the political conditions under which crises can be prevented or their distributional consequences smoothed and the way how FSP can help to prevent/surmount distribution conflicts and the probability of crises.

The paper is a sequential exploratory analysis about the influence of political factors on the probability of financial crises. After controlling for the effects of macroeconomic *fundamentals*, I test for the statistical and economic significance of political factors and identify those elements which better help to predict the probability of currency crises. Subsequently, I test if uncompleted FSP implementation in domestic countries helps to predict the probability of this type of crisis. Finally, I test if those political elements which are important in the prediction of currency crises are robust to other common definitions of crises in terms of Balance of Payments. I deal with these issues using Probit and Tobit models in the econometric approach to assess these relationships in a sample of 63 developing countries between 1985-I and 2000-IV.

For the sake of presentation this document will be split into six sections: in the second one after this introduction will be presented the theoretical framework under which a simple model of political loss is introduced to formalize the kind of relationships we will be dealing with; in the third section will be outlined the main empirical evidence available in the literature with regard the relationship between political economy variables and the probability of financial crises; in the fourth section will be given firstly an overview of the data which will be followed for a further econometric approach in order to derive some quantitative indicators of significance and causality of our political variables. The fifth section will be the room to derive implications for economic development and policy suggestions and the sixth section, as usual, will conclude.

2. Theoretical Framework

2.1. The Literature

The interaction between elements of political economy and those considered to be a matter of “pure” economic nature is attributed in the literature of financial crisis to the so-called “Second Generation Models” (Krugman 1996; Obstfeld 1994, 1996). These models explicitly give a central role to optimizing governments who have to choose between conflicting objectives. In particular, in these models economic decisions (typically to maintain or abandon a fixed exchange rate) depends on the *trade-off* between cost

and benefits linked to merely political objectives rather than in response to a deterioration of economic *fundamentals* characteristic of the first generation models (Krugman 1979).

On the *fundamentalist* approach speculative attacks are triggered for misalignments of fiscal and monetary policies relative to which is considered a sustainable level given other macroeconomic objectives, namely a fixed exchange rate. These disequilibria in turn imply massive flights of capital and unsustainable current account deficits which force abrupt exchange rate transitions, generally from fixed to floating systems like the cases of UK and Sweden in 1992 (Drazen 2000).^{8,9} The political economy interpretation, on the other side, asserts that even in the absence of *fundamentals* misalignments such a decision to float or to keep a fixed exchange rate system depends on a government's optimal response to a broader set of political objectives like the reduction of extreme negative social outcomes, the political cost associated to an increase of the interest rate or the will for political integration like the case of the EMU in 1992. (Drazen 1998, 2000).

In this paper I consider for the political implications of one important component up till now overlooked on the side of the political economy approach. It is the debate about the impact of FSP on the ability of a country's government to surmount a crisis episode. Clearly policy packages and financial assistance linked to IMF financial support influence the design of economic policy in borrower countries; however, the IMF is not a sole actor in the scene of international financial architecture neither its influence work in a vacuum. Both, IMF loans disbursements and implementation of programs for structural adjustment are the result of complex negotiation procedures between the institution's staff and a country's government (Robinson and Rosser 1998; Haggard 2000; Robinson, Beeson et al. 2000).

Curiously though there is a certain body of theoretical literature looking at the impact of political variables on financial crises,¹⁰ and the effects of political variables on the design and implementation of FSP (Drazen 2002; Joyce 2003),¹¹ these approaches remain as separate issues with little, if any, theoretical attempts to model the relationship between political variables, FSP, and financial crises. I consider for this possibility in a quite simple context where political interests hinders firstly the successful implementation of programs and afterwards the uncompleted implementation of FSP contribute to the explanation of financial crises.

2.2. A Formal Model of Political Loss

The aim of this section is to make clear the interrelationship between the political nature of economic decisions and the degree of FSP implementation, and the relationship of these elements with the outset of financial downturns. I follow Drazen's strategy who proposes that the political nature of economic decision can be modelled using a loss function to capture the *trade-off* between conflicting political objectives. Drazen assumes that under speculative attacks, countries that have a fixed exchange rate system face a

contesting decision between maintaining the parity or devaluing, with both options confronting a merely economic loss, whose size depends on the size of the speculative attack and the deteriorating effects of raising the interest rate on the economic activity, and a merely political loss, i.e. failing the grade for political integration if the commitment of policy makers to defend the parity is broken. The model of Drazen is focused on the discussion of crisis contagion under *primarily political* objectives; the policy maker supports a political objective even at a significant economic cost. i.e. “holding the exchange rate fixed for the purpose of enhanced political integration [in the movement to the EMU in 1992] at a significant economic cost is a ‘primarily political’ decision ” (Drazen 1998), pp. 9-10.

The model introduced here follows the same logic in order to provide a formal framework for the kind of effects we are dealing with. In this context, political decisions are constrained by a complex interaction between the social costs of alternative economic policies, the need for external funds, the risk of being prey of speculative attacks, and the commitment with international financial institutions. For a small open economy with high capital mobility and fixed exchange rate, we can assume a policy maker facing the existence of a set of optimal economic targets, typically this is a commitment to maintain a fixed exchange rate ($e_t \equiv \bar{e}_{t-s, t-1}$, $t = 1 \dots T$, $s=t, \dots T-1$), which is compatible with other macroeconomic objectives, say a specific target for the level of foreign international reserves ($r_t \geq r^*$), a desired level of unemployment ($u_t \leq u^*$) and/or a given rate of inflation ($\pi_t \leq \pi^*$). This commitment in turn implies the imposition of an interest rate enough high ($i_t \equiv i^*$) to prevent the losses associated with idiosyncratic shocks (η) on the economic activity which can affect the maintenance of the parity.

Under an idiosyncratic shock which is observed for both the policy maker and the speculator, the former decides whether to maintain the original commitment or to float the exchange rate by relaxing the monetary policy through a lower interest rate ($i_t \leq i^*$), with both options facing economic losses, say a slower GDP growth, and political losses associated to the lack of credibility either of constituencies or investors. The size of these losses are assumed to depend on an asymmetric information set of the “weights” (ω) the policy makers assign to (failure) their objectives, say the conditions for political integration (\bar{I}) like posed by Drazen, the credibility in the international financial markets (c) associated with the lack of loyalty to sound macroeconomic policies, or the loss of confidence of his constituencies (z). The asymmetry is given in that these “weights” are known with certainty only for the policy maker while the speculators are constrained to conjecture about them only on the basis of past events defined over ($\omega_{\min} \leq \omega \leq \omega_{\max}$).

On the basis of government’s behaviour in past shocks the speculator forms then a guess whether devaluation will occur or not (d). Similarly to Drazen, we can characterize the speculator as borrowing domestic currency to buy foreign currency with the demand for borrowing been a decreasing function of the interest rate and an increasing function of the devaluation expectation. In other words, if speculators believe that the government will regret the commitment with a fixed exchange rate by devaluing they will

borrow domestic currency to buy foreign reserves. Nevertheless, the demand for borrowing is not unlimited, if the government decides to defend the exchange rate it will keep an interest rate enough high to counterbalance the drain of foreign reserves below a target level which in turn implies that the interest rate is an increasing function of the devaluation expectation, the higher the latter, the higher the demand for borrowing and the higher the interest rate necessary to discourage the speculative attack. On the other hand, the defence of the exchange rate is not without consequences, if the case is one of over-valuation in real terms, it hinders trade competitiveness and social welfare as measured by economic growth which explains why government should choose to prevent these losses by devaluing.¹²

A formal setup of these relationships is as follows. We assume an initial set of information with regard the feasibility -an interrelationship- of purely political and economic objectives (X,Y) ,¹³ a set of desirable values for each of both, political (x^*) and economic (y^*) , targets and a prediction mechanism $(f(x, y))$. The policy maker faces then losses associated to the “weights” of political objectives and the gap between the desired values of economic variables and their actual values as given by:¹⁴

$$l(X, Y, x^*, y^*, f(x, y) | \eta, i(d)) = \begin{cases} 0 & \text{if } y^* = f(x, y | \eta, i(d)) \\ \omega x^* + (y^* - y) & \text{otherwise} \end{cases} \quad (1)$$

Under the first condition, an optimal prediction of the economic target, which is coherent with political objectives, annuls any loss. The predicted values for economic targets nevertheless, depend on idiosyncratic shocks, such as contagion, deterioration in terms of trade, rise of international interests rates or growth recession in developed countries, which are summarized by η , and the settling of an interest rate enough high to discourage speculator’s devaluation expectation, as summarized by $i(d)$. Under the second condition, the miss-prediction causes a positive loss whose size depends on the weights the policy maker assigns to the failure of political objectives and the loss associated to failure economic targets.

A clear objective of the policy maker is to choice a combination of policy measures which allows him to reduce both losses. That objective implies the assessment of cost and benefits between economic and political targets as the reduction of the economic loss may demand some political sacrifice and vice versa. An interest rate enough high to defend the parity reports benefits, if the objective is economic integration or to fight inflation, and losses which are summarized in higher unemployment, slower economic growth and loss of export competitiveness. The decision to abandon the defence by devaluing allows the reduction of some of these losses but imposes new ones whose size depends on the weights of political objectives. For instance, a left wing government could be more interested in maintaining the parity to prevent the negative effects of inflation on its constituencies; a right wing government on the contrary could be more interested in a market determined exchange rate; devaluation can result also from pressures leading by sectoral or

regional interest groups like export oriented industries but this policy generally is contrasted by importers interest groups.

In practice, the size of the loss depends then on the political and economic contingencies under which decisions are adopted. Low inflation can be a important goal in highly inflationary economies like Argentina or Brazil at the end of the 80s, but it becomes less important if economic growth is under recession. On the other side, political instability in countries with weak governments is probably to increase the size of the losses as long as the decision making procedure with regard important economic measures is more conflictive if the executive branch of the government has only small support from legislative branches or the opposition party has a higher share of places in the parliament.

With regard the impact of FSP, they are assumed to depend on the commitment of a country's government to program implementation (p) given other merely political objectives, i.e. a policy maker in developing countries can find easier to secure international creditworthiness by signalling political agreement with lenders and compliance with policy reform packages if these tendencies are without political consequences. Nevertheless, in the presence of political targets; say to triumph in an electoral contest or to increase the tenure in office, the policy maker may regret the previous commitment by evading unpopular reforms. Later in this document I will analyze as well a supply effect where "political disagreement" between IMF member countries hinders the disbursement of loans and the issue of FSP to a given country.

The simplest case for this interaction can be understood as a binary decision making procedure, if the first condition in (1) holds and the economic target is coherent with political objectives, $y^*=f(\bullet)$, there is not any loss either political or economic and consequently there is not need for implementing FSP ($p = 0$). If the second condition holds, there is a loss ($p = 1$) equivalent to the risk of political failure leading by participation in FSP.

$$l(\bullet) = \begin{cases} 0 & \text{if } y^* = f(\bullet) \\ p = 1 & \text{otherwise} \end{cases} \quad (2)$$

This case in fact is highly unrealistic at least in one respect, we have suggested that agreements of a country's government with FMI are leaded by the need to create confidence in international financial markets which means that at the end FSP reports benefits instead of losses.¹⁵ A minor modification of the last equation allows for taking into account the more realistic case where the political loss associated to FSP depends on the degree of program implementation. In this case, we assume to exist a gap between optimal and current implementation ($p^* - p$) whose effects depends on the weights of political objectives and the need for additional funds in order to solve economic imbalances.¹⁶

$$l(\bullet) = \begin{cases} 0 & \text{if } y^* = f(\bullet) \\ (p^* - p) & \text{otherwise} \end{cases} \quad (3)$$

The first condition in equation 3 again tells us that if things work adequately losses simply does not exist and FSP are not necessary ($p=0$). In the second case, given a idiosyncratic shock, the policy maker faces a *trade off* between what is considered a good signal to financial markets by compliance to FSP ($p^*=1$) and the risk of political failure, say loss of constituencies, for the implementation of these programs. In this case the policy maker chooses between full ($p=1$) and partial implementation ($p < 1$). The first could be the case if the political objectives of the government coincide with the objectives of FSP and the financial support linked to FSP help to surmount the economic imbalance. If these objectives are dissimilar, which seems to be frequently the case as suggested by the literature, FSP are implemented only partially and frequently are broken before completion either by the borrowing country or the IMF directly, the loss associated with that lack of implementation, say a loss of credibility by investors, depends then on the *trade off* between the weight of political objectives and the need for resources to surmount the economic imbalance. Consequently note that in equation (3), under full implementation losses are zero also under the second condition whilst under partial implementation there is a positive loss equivalent to the amount of programs not implemented.

Indeed one can think in the speculative attack as an increase function of uncompleted implementation. If on the basis of past behavior, speculators guess that FSP and a country's government political objectives are in conflict, they will reinforce the speculative attack. We can assume, for instance, that one objective of FSP asks for a market determined exchange rate whilst the country is more interested in the defense of an over-valuated exchange rate, consequently, if speculators perceive that devaluation is unavoidable they will reinforce the speculative attack.

Adding equations (1) and (3) we arrive to the following loss function where the losses are associated with the weights of political objectives, the gap of economic targets and the incomplection in FSP implementation.

$$l(\bullet) = \begin{cases} 0 & \text{if } y^* = f(\bullet) \\ \alpha x^* + (y^* - y) + (p^* - p) & \text{otherwise} \end{cases} \quad (4)$$

Equation (4) presents a quite simple but instructive formalization of the kind of relations we are dealing with. It tells us that if the political and economic objectives of the policy maker are achieved, there is not any loss at all. In other words, if the set of macroeconomic targets is coherent with the political objectives

there is not any reason to regret the commitment with current macroeconomic policy and there are no economic neither political losses at all.

Nevertheless, the second condition is more interesting, under an idiosyncratic shock which displaces economic variables from their optimum, the policy maker faces a *trade off* between economic and political losses. If the decision is to maintain the original economic policy in order to prevent the political loss, say to maintain a high interest rate to defend the overvaluation when devaluing is wiser, he faces positive economic losses ($y^*-y > 0$) and none political loss ($\omega x^* = 0$), if the decision is to abandon the defence by devaluing in order to counterbalance the idiosyncratic shock, he faces no economic losses ($y^*-y = 0$) but positive political losses ($\omega x^* > 0$). The policy maker then would attempt to minimize these losses by choosing that option which allows the change in the economic commitment in line with his political objectives. Furthermore, he will use loans linked to FSP to close the economic imbalance as long as the objectives of these programs be in the same fashion as his/her political objectives.

The advantage of settling a formal framework of the relationship between political objectives and economic outcomes in this way is that it makes evident the theoretical derivation of the relationship between these variables rather than simply assuming its form. The standard loss function in (4) can be used to estimate the gap between the true unknown values for political and economic variables and the values predicted by the fitted model. In the econometric approach, I follow the common practice to minimize the gap between actual and predicted values of the parameters of interests ($y^*- f(\bullet)$) through a maximum likelihood approach.

2.3. The Hypotheses

I will construct my case by taking into consideration two main elements: firstly, I consider the impact of political variables on the probability of currency crises and explore if that causality effects remain for the alternative definition of crises in terms of balance of payments; and secondly I investigate the additional impact of FSP on these events. The first of these targets is rather a test of robustness for the explanatory power of political elements on the probability of crises. As will be referenced in the next section, some of the political variables considered here have been already tested in previous studies, but their results still remain inconclusive.

In the previous section we argued how the minimization of the loss function depends on the economic and political contingencies in which decisions are made. We suggested that social welfare of constituencies could have a higher weight under left wing governments whilst market determined changes in economic instruments are more important in right wing governments; furthermore we suggest that lobbying practices by interest groups could be influential in the decision whether to devalue or to maintain the parity and that

the decision making procedure could increase the size of the loss in the case of weak governments with small representation in the parliament. In fact this analysis could be extended to consider the impact of other political elements on the probability of financial crises.

For instance, electoral dates have been suggested in the literature to increase the probability of currency crises, political uncertainty about the economic measures that will be carried for parties in contest increase the vulnerability of the economy to speculative attacks, especially if some measures are perceived to be unavoidable. The probability of currency crises also may be higher the lower the level of democracy, countries with low democracy can be characterized by lack of compliance to original commitments and mainly inclined to favoured particular interest groups which make higher the expectative of successful speculative attacks if for example, devaluation is the preferable option for those interest groups. Nevertheless, as suggested in a previous study this argument is conflictive, one should expect consequently a lower probability of crisis to be associated with more democratic countries because they are characterized by more transparent economic policies and more encouraged with original commitments which make crises less probable. But also a higher level of democracy is probable to be associated with public pressure and political concern for the redistribute consequences of economic decisions which implies a higher vulnerability to currency crises if the government perseveres in the defence of an over-valuated exchange rate. That relationship between democracy and the probability of crises depends, consequently, of which effect is more important the compliance to original commitment or the concern for political costs of economic decisions.¹⁷

A plausible hypothesis here is that the significance and causality of political economy variables on the prediction of financial crisis depends largely on the characterization of crisis itself. In other words, political factors that are important in the explanation of currency crises could be irrelevant in the explanation of balance of payment crises because technical requirements and reserve adequacy policies are more stringent than policies related to the exchange rate regime. The questions I intend to answer are, for instance, if elections dates, country's government partisanship, government strength indicators, the degree of democracy, and the existence of special interest groups affect the probability of currency crisis, and if they do, how large are their effects. Furthermore, I investigate if these effects are robust to the definition of crises in terms of Balance of Payments.¹⁸

The target of assembling in this analysis the impact of FSP deserves a little more of justification. Largely, the role of IMF in the international financial system has been thought in terms of provision of financial support for countries facing temporal balance of payments shortfalls; while true, this argument overlooks the role of political elements in lending and borrowing practices between IMF and domestic countries.

In fact, the role of IMF in the international financial system includes a broad rank of activities conducive to ease monetary cooperation and financial stability, promote world trade and enhance economic development (Bordo and James 2000). In this context, Fund loans to member countries are granted under different mechanisms and with different purposes, for instance, the *Ordinary Drawing Rights*, is granted with no conditions for policy reform; while other arrangements like the *Compensatory Financing Facility*, the *Supplemental Reserve Facility*, the *Contingent Credit Line*, and the *Poverty Reduction Growth Facility* result from a bargaining process of IMF supported programs for policy reform.¹⁹

The assumption here is that the amount of loans and the implementation of related programs depend largely on political factors. On the one side, IMF lending practices seems to be highly influenced by the vote majority of their country members, the most important decisions by the institution have been said to be taken with the favourable vote of the 85% majority, and the United States alone holds 18% of vote rights which gives that country a veto power on the decision making procedure of the institution. This issue comes to suggest that “political proximity” of borrowing countries to IMF main shareholders could be an important element to get access to fund resources and consequently on the possibility of the institution to pose programs for policy reform (Thacker 1999; Barro and Lee 2003).

On the other side, domestic political interest seems to play an important role in the implementation of FSP after an arrangement has been agreed. The assumption we can advance here is that a low level of implementation is originated in dissimilarities between the political objectives of the government and the objectives of FSP.²⁰ As we argued in the previous section, the policy maker in the domestic country would try to balance his economic losses using Fund loans as long as the conditions attached to these loans be in line with his political targets, a large disagreement implies that less resources will be used and less programs implemented in order to prevent a political loss, even if this option implies the risk of economic failure because as we argued the speculative attack is an increasing function of the lack of implementation.

The hypothesis is then that the effect of FSP on the borrowing countries’ probability of surmounting a crisis episode depends basically on the scale of conditions implemented. Consequently, the question I investigate here is if countries with a higher percentage of uncompleted FSP are associated with a higher probability of financial crises and if they do, how large is that probability. It is for the most an attempt to address the controversy surrounding IMF intervention in past crises which has been conducted broadly on a normative ground for its critics (Sachs 1997; Feldstein 1999; Stiglitz 2002)²¹ and defenders (Haggard 2000; Rogoff 2004).²²

The evaluation of these theses imposes important challenges. First, FSP are agreed as response to previous financial disturbances, consequently the evaluation of uncompleted program on the probability of crisis is restricted to those countries which faced a crisis episode and signed an agreement with IMF. In other

words, the impact of uncompleted implementation on the probability of crisis is observed only for countries with FSP. Second, FSP are indeed endogenous to political and economic factors which imply that the effect of uncompleted implementation on the probability of crisis should take into account the correlation effects between FSP and other political variables considered in the model. These are wide known problem of selection bias and endogeneity about which I will give insight on solution procedures later in this document. Third, country specific characteristics are expected to affect the way how political factors and FSP influence the probability of crisis even in the presence of similar idiosyncratic shocks, i.e. Korea, Turkey and Brazil current account difficulties in the second half of 1970s were originated in exogenous terms of trade shocks whose resolution involved FSP. Although the Korean adjustment was relatively less politicized, its performance was the worst. The explanation was the relatively higher dependence of this country's income on international trade and additional difficulties associated to an unusual poor harvest which accounted for a 3% decline in its GDP in 1980 (Rodrick 1999). I will consider then for the influence of these specific characteristic later in my statistical approach.

A fourth, but perhaps not the last, challenge imposed by the analysis is with regard the difficulty to disentangle *program effects* from *financial effects* in the arrangement with IMF. In practice the small size of financial support associated to FSP is out of controversy; IMF loans are meant to be temporal provision of additional resources to face financial downturns and recover investor's confidence (Rogoff 2004). In that case the relevant question should be how different are the impacts of finances alone and the separate effect of conditions for policy reform. The strategy adopted here does not allow that differentiation. I follow Killick's assumption that the degree of uncompleted programs is roughly captured for the percentage of loans agreed but not yet disbursed; it is the percentage of undrawn balances under the different country's arrangements with the IMF. While this approach obliterates important changes in the number and details of conditions occurred between 1980s and 1990s (Dreher 2002), it allows to catch with the dynamic relationship between the gradual implementation of programs and the probability to worsen/surmount crisis episodes.

3. Empirical Evidence.

3.1. Political Variables and Financial Crises

Empirical research on the political determinants of financial crisis still is narrow and offers a mixed body of evidence. For instance, Eichengreen et al. employs a sample of 20 OECD countries to test the effect of electoral processes, government changes, government strength, and government partisanship (left/right/center orientation) on the probability of exchange rate transitions. After controlling for pure macroeconomic effects they find no correlation between these political variables and the probability of exchange rate events, whether devaluation, revaluation, flotation or "tranquillity". Over this evidence they

argue that transitions in exchange rate are largely *idiosyncratic* rather than caused by ex ante imbalances or ex post changes in politics (Eichengreen et al 1995).

Mei, using a sample of 22 emerging countries tests the influence of electoral processes on the probability of abrupt shift from capital inflow to outflow between consecutive periods and finds that political uncertainty during these periods is positive and significantly associated with financial panic (Mei 1999). Bussiere and Mulder, using a different sample of countries find evidence of positive statistical significance of electoral processes on the occurrence of crisis, defined as an index of weak foreign reserves and the increase of real exchange rate. Additionally these latter authors find significant and positive association between political instability (changes in seats held by different parties) and a non significant effects of polarization and coalition stability (Bussiere and Mulder 1999).

Block uses a sample of 23 emerging countries to test the impact of election dates, political orientation of the ruling party, degree of democracy, indicators of government “strength”, and political concentration on the probability of crisis defined as a weighted index of depreciation of nominal exchange rate and large declines of foreign reserves. His findings corroborate the positive association between elections and the probability of currency crisis although in contrast to the evidence presented by previous works this variable lacks statistical significance. Further evidence suggest statistical significance of a Herfindahl index of political concentration of the opposition which is positively related with the probability of crisis, an indicator of the government’s share in legislative seats, which is negatively correlated, and a dummy variable for right wing governments which is negatively correlated. Lastly he finds ambiguous and no significant effects of a scale indicator of democracy on the probability of crisis (Block 2002).

In a more recent study for a set of Latin American and OECD countries, Brooks evaluates the influence of political variables in the context of capital account liberalization. She finds evidence of a negative and significant relationship between left wing governments and the adoption of market liberalization policies in Latin American Countries while the effects of right and left wing governments on financial liberalization are both positive and significant for OECD countries. Though indirectly, she relates that results to the potential higher short term risks of financial crises confronted for capital scarce countries and suggests that left governments in poorest countries take more into consideration the risks associated with the loss of confidence of their voters, working-class and low skill labourers, who often suffer the most following capital account liberalization (Brooks 2004).

The positive relationship of political instability with the probability of currency crises has been corroborated more recently by Glick and Hutchison. They use a sample of 69 Developing Countries to test the probability of currency crises given a set of macroeconomic and political variables. They include two political variables in the prediction of currency crises, the frequency of changes in government (democratic

and undemocratic) and the degree of political freedom. They find that government changes exerts a positive and significant impact on the probability of currency crises whilst the indicator for political freedom is negative and not significant (Glick and Hutchison 2005).

3.2. FSP and Political Variables

The relationship between FSP, political variables and financial disturbances has been less explored in the empirical literature. Indeed the analysis of the relationship between FSP and crisis episodes has been largely assumed to depend on the pre existence of financial disasters and the research conducted either on the performance of economic indicators after the implementation of the programs, or on the influence of political variables on the probability of implementation/completion of FSP. On the economic performance side, existing studies allow us to distinguish, amid a broad set of ambiguous results, more supporting evidence pointing out a significant and positive program effects on the improvement of the current account or the overall balance of payments, and less conclusive results on the effects of these programs over the reduction of inflationary trends and the improvement of economic growth (Conway 1994; Killick 1995; Haque and Khan 1998).²³ In fact, the most of evidence is going to support the negative impact of FSP on short-run economic growth. At the beginning of the implementation countries observe a reduction of domestic and foreign investment which affects the rate of growth, nevertheless, these effects seems to lessen over the subsequent years of the implementation (Conway 1994; Hutchison 2001; Barro and Lee 2003; Bordo, Mody et al. 2004).

Furthermore, literature points out that FSP exert certain “catalytic effects” as long as participating countries generally experience a higher probability of observing the return of investor’s confidence or reduce the probability of financial outflows from non-Fund sources after the implementation of the programs (Bordo, Mody et al. 2004). But also participation in programs seems to prompt moral hazard behaviour and recidivism practices in crisis countries as long as lenders and debtors assume that some how rescue package are available in case of collapse and persist in risky actions which prompt the case for worsening crisis and longer participation on FSP (Bordo and Schwartz 1998).

On the political side, which is the main focus of my document, a relatively broad set of literature supports the fact that a successful implementation of FSP as well as the completion or suspension of the negotiated programs is endogenous to political variables on both demand and supply sides. In the first case, A successful implementation of programs seems to be positive and significantly affected by electoral cycles, and the degree of political openness of the borrower countries while the duration of political regime and the ideological cohesion of the government are less important (Dreher 2002; Joyce 2003). In the second case, evidence provide by Barro and Lee suggests that the higher the country’s quota in IMF, the closer the proximity to the more advanced countries (the United States and the European Union) and the more

nationals working in IMF's staff, the higher the probability of approval and size of loans (Barro and Lee 2003). These findings corroborate previous results by Thacker who shows that the higher the "political proximity" and the "political movement" of a borrower country toward the United States' vote interest in the United Nation General Assembly, the higher that country's probability of being granted with Fund loans (Thacker 1999).

In my knowledge, only one previous study by Conway has attempted an assessment of IMF supported programs on economic crisis. He tests the probability of entering or exiting an economic crisis (defined alternatively as forex reserves growth, forex reserves to imports ratio, and inflation rate in excess of a predetermined critical value) by participation in FSP for a sample of 90 developing countries over 1974-1992. His evidence presents statistical significance of program effects on the probability of deterring crisis episodes although this effect is lesser the longer the participation in programs. Other results show that the impact of program participation on the probability of starting crisis episodes lacks statistical significance and that long participation increases the probability of returning to a crisis state (Conway 2000).

The results in Conway involve an element of circularity. Economic crisis lead countries to participate in FSP and the participation status explain the probability to surmount or worsen the crisis. In this model the probability of crisis is firstly controlled by lagged values of crisis indicators, the real exchange rate and the reserve/import ratio observed in the year preceding the beginning of crisis. FSP are evaluated for their impact on the length of crisis episodes. The strategy adopted by Conway, nevertheless, assumes FSP have been fully implemented for the recipient countries, which according with the most of the literature is not the case, and it does not considered the influence of political elements on FSP, two important facts which open the door for further research.

4. Data and Methodology

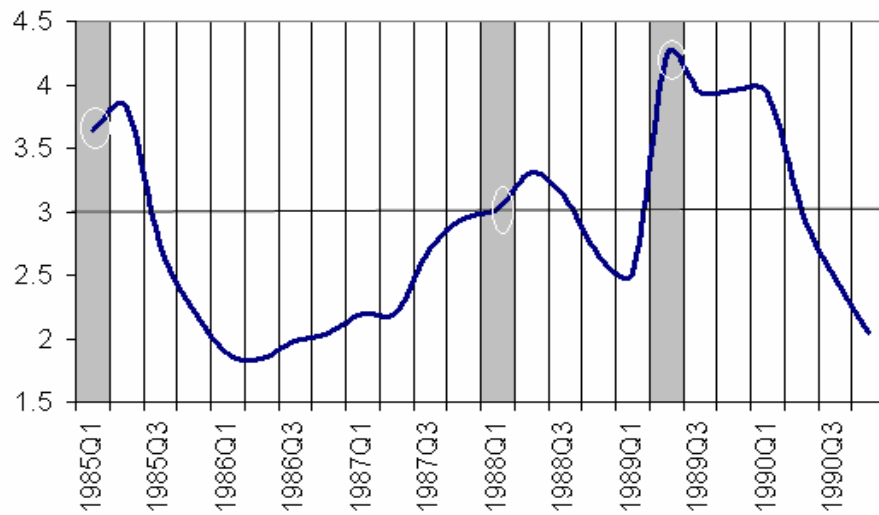
4.1. The Variables

The dataset used in the econometric approach include a list of 63 developing countries which are observed on a quarterly base for 1985 I -2000 IV. The selection criterion was the availability of information on economic and political indicators for at least the half of the period under consideration. The countries considered in the statistical approach are reported in annex A1, the data sources for both economic and political variables considered in this exercise are referenced in annex A2.

Currency crises (end of year exchange rate per dollar) and balance of payments crises (year on year growth of foreign reserves excluded gold) are measured following Ishihara (2004); it is, the variables are standardized and a crisis episode is considered to be at least 3 standard deviations wide of the arithmetic

mean during the past 20 quarters.²⁴ Additionally a window exclusion of three quarters is considered; it means a new crisis is considered to exist only if the number of quarters between the last crisis and the current one is at least three quarters. These relationships are depicted in figure 1, there 1985 I and 1985 II are both more than 3 standard deviations wide of the 20 quarters mean, nevertheless, while the first is considered a crisis episode the second one is treated as part of the same episode because it is only one period away. Similarly, 1988 I is considered a new crisis period but 1988 II and 1988 III are not because they are only one and two quarter away of the last crisis. Finally, 1989 II is considered a new crisis periods because it is more than three quarters far away of the last crisis but the three following quarters are treated as part of the same crisis and excluded of the event. The number of crises identified under this methodology and the dates of the event are reported in annex A3

Figure 1. Crisis Determination



The political variables are obtained from Beck et al and polity IV project.²⁵ I use a similar array of political variables used in previous studies. Government partisanship, left and right wing governments are compared versus center wing governments; a dummy for year of elections of both legislative (legel) and executive (exelec) branches; indicator of government strength, a herfindahl index for government opposition (higher number in this variable indicate a higher political opposition), percentage of votes a president got in the first round of the last elections (strenght), and percentage of chairs the government have in the parliament (maj); a dummy variable for special interest groups, whether nationalist, regional or rural, in the executive (execsp) and legislative (govsp) branches of the government, and democracy (Democ) (Beck, Clarke et al. 2001; Marshall and Jagers 2003).

Uncompleted FSP implementation is considered similarly to Killick. It is, we are interested in the un-disbursed balance on the last tranche of loans agreed to borrower countries because a high amount of

undrawn balances on this tranche means that the original agreement was broken earlier either because the country was unwilling or unable to conform the original commitments or for other political reasons. The threshold at which a program can be considered broken is arbitrary, in that issue I follow Killick by considering a given program as uncompleted when at least 20% of the amount initially agreed remains undrawn for the last tranche (Killick 1995). Programs considered are Stand By Agreements (SBA) and Enhanced Fund Facilities (EFF). The basic information has been obtained of the IFS and supplemented with IMF annual reports.

To control for the macroeconomic *fundamentals* I examine a series of indicators which have been used extensively in the literature of financial crisis on the basis of their availability for at least the half of the time period under consideration. They include, the year on year (yoy) growth of foreign reserves minus gold, yoy growth of exports FOB, yoy growth of inflation, yoy growth of domestic credit and the degree of overvaluation which is measured following Frankel and Rose, as the deviation of real exchange rate from country specific average for the whole period (Frankel and Rose 1996).²⁶ The choice for measuring time series growth on a year on year basis is the need to correct for seasonal effects which are present in the most of these series. Descriptive statistics for both economic and political variables are reported in table 1

Table 1. Descriptive Statistics

Variable	Number Obs.	Mean	Std. Dev.	Min.	Max.
overall	3894	0.0	0.1	-0.8	4.2
Dom. Cred.	3881	0.3	39.1	-2239.1	792.9
Res.	3982	0.4	2.4	-1.0	87.5
Exp	3563	0.2	2.3	-1.0	110.0
Inf.	3858	1.2	11.5	-0.2	356.8
left	2588	0.5	0.5	0.0	1.0
right	2588	0.4	0.5	0.0	1.0
herfgov	3180	0.8	0.3	0.0	1.0
maj	3544	0.7	0.2	0.1	1.0
strenght	1892	50.4	25.8	0.0	100.0
exelec	3968	0.1	0.3	0.0	1.0
legal	3968	0.2	0.4	0.0	1.0
execsp	3968	0.1	0.3	0.0	1.0
govsp	3968	0.1	0.3	0.0	1.0
ndem	2468	0.6	0.5	0.0	1.0
sdem	2468	0.3	0.5	0.0	1.0
FSP	901	0.6	0.3	0.0	1.0

Source: Author

Consistent with the existing literature, I will expect financial crisis under the different specifications considered in this exercise to be preceded on the *fundamentals* side by higher rates of inflation, expansion of domestic credit and high overvaluation as well as by downturns on foreign reserves and exports growth (Frankel and Rose 1996; Kaminsky, Lizondo et al. 1998). On the political side, we argued above the reason

why it is expected that election dates and left wing governments be associated with a higher probability of financial crises, while this probability is expected to be lesser for right oriented partisanship. The effect of government strength has been argued may help to reduce the probability of crisis, while the effect of democracy was argued to be uncertain, as well as the effect of special interests groups. We supported above the reason why the influence of these last variables largely depends whether they reduce the room for financial market uncertainty or by the contrary, they constitute another source of political instability.

Additionally I instrument the political character of FSP for the “political proximity” and “political movement” of countries’ governments to the United States. The data for the first variable consists on the identical votes a given country did in the United Nations General Assembly (VUNGA) on ten to fifteen issues considered internationally important for the United States. The information was obtained from Thacker and supplemented with the Department of State Annual Reports on Voting Practices.²⁷

Accordingly with the hypotheses advanced above I expect a higher probability of crisis for countries with higher incompleteness of FSP. It is, the higher the political disagreement between IMF and borrower countries, the higher the probability for these countries of remaining in crises. As our proxy for political disagreement between IMF and domestic countries is the percentage of undrawn balances in the last tranche of a given loan, I expect a positive coefficient to be associated with this variable.

4.2. Some Preliminary Graphics

Before to go into econometric issues it is interesting to see how the relationship within our information set looks like. Figure 2 shows some key differences in experiences of crisis for our sample of countries. The figure depicts the percentage of 64 quarters a country was identified in crisis when a common standardized measure is used for our definitions of crisis. For instance, Brazil shows a 12.5% or 8 quarters in currency crisis between 1985 I and 2000 IV and only 1.6% or 1 period of Balance of Payments crisis. It is clear, from this relationship that not every single currency crisis has been accompanied for balance of payment crises; it is, for a severe downturn in international reserves. In fact, figure 2 is an aggregate of crisis which rarely occurred simultaneously, looking over time currency crises looks highly disregarded of balance of payments crises.

Currency crises are known to be preceded by severe loss of foreign reserves and/or high interest rates which somehow should be related to domestic credit. Nevertheless, none of these policies, reserves expenditures and interest rates, has been always successful in stopping currency downturns (Eichengreen, Rose et al. 1995), which is even more evident in the case of developing countries which commonly face technical requirements, reserve adequacy policies and interest rate controls (Eichengreen, Rose et al. 1995; Frankel and Rose 1996). Economies affected by speculative attacks then find more viable to abandon the

exchange rate than to persevere in a fruitless defense, a fact which help to understand why in practice it has been more frequent the case for currency downturns than for other crises types.

One of the hypotheses we formulate above is that the relationship between political variables and the probability of financial crises largely depends on the definition of what we mean by crisis. Figure 3 shows this relationship, the average of each crisis type between 1985 I and 2000 IV for the 63 countries in our sample shows that generally left partisanship is related to a higher proportion of crisis than those associated with right wing governments. Nevertheless, when a comparison is done between crises types, balance of payment crises seems to be proportionally less probable under left than under right wing governments. This fact probably is related to the evidence provided by Brooks where left headed governments in developing countries are more concerned with the political risks of capital account liberalization and consequently are less prone to face a crisis of this type (Brooks 2004).

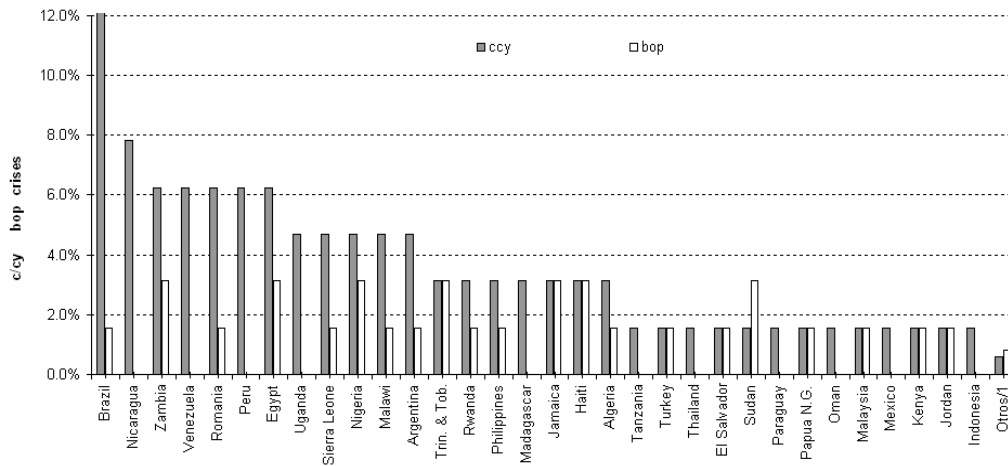
Looking at the case of government strength in figure 3, stronger governments are generally related with a smaller proportion of crises, in comparison with the case of weaker governments, which suggests that political instability is less severe in the case of strong governments. Nevertheless, currency crises seem to be proportionally more probable in stronger governments than in weaker ones.²⁸

The relationship between electoral dates and periods of crisis looks relatively low when is compared with other political events but still is related with a fifth of the disturbances related mainly with legislative elections. Here, currency crises seem to be more associated with executive than legislative electoral journeys and, similarly currency crises seem to be more probable when special interests exist in the executive than in the legislative branch of the government.

The relationship between democracy and financial crises is a contesting issue. The evidence provided by Block shows ambiguous and no significant effects of this indicator, a fact probably related also with the definition of what is understood by democracy. Block uses Democ, a indicator drawn from Polity IV Project ranked between 0 and 10 to measure low to strong levels of democracy and finds that kind of inconclusiveness (Block 2002; Marshall and Jagers 2003). In fact, looking at the first square of figure 4 the relationship between Democ and crises episodes suggests that a controversial proportion of crises are happening under democratic regimes. Here I skip the debate of what could be judged democratic but for the purposes of the document I split Democ between narrow and strong democracy, the first one is considered to meet some desirable although not enough conditions for democracy which are meet for the latter. Particularly, narrow democracy is considered to meet conditions like a competitive and open electoral system, political competitiveness and substantial limitations on the executive, whilst a strong democratic regimen include additionally an intermediate or higher executive party subordination.²⁹ The second and third squares in figure 4 shows that regimes considered to be strongly democratic face a lesser proportion of

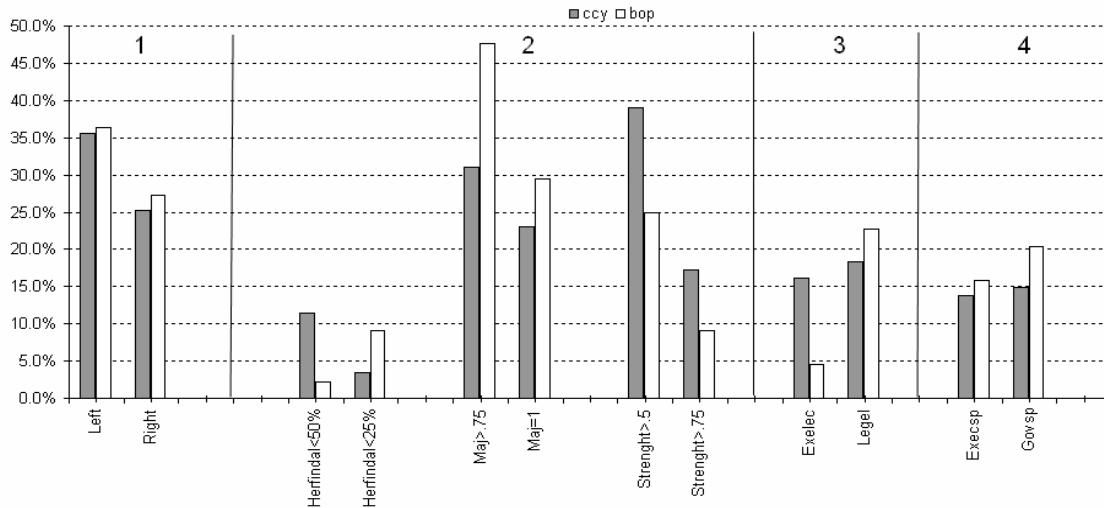
crises in comparison with narrowly democratic regimes, probably because investors are more willing to risk their money in the former than in the latter.

Figure 2. Percentage of quarters a country was under crisis: 1985 I – 2000 IV



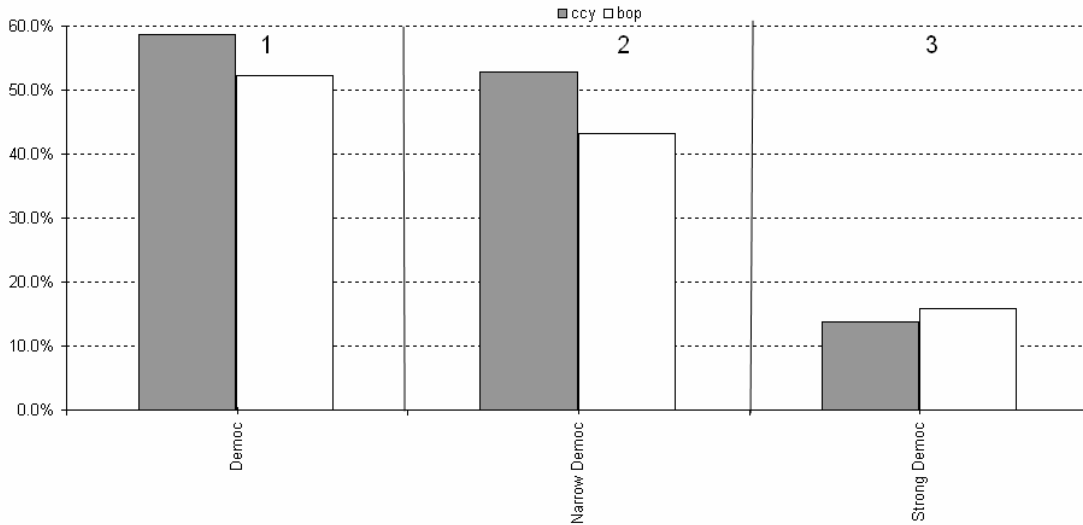
Note: The crisis periods are identified as three standard deviations of the mean over the previous five years and three quarters window restriction
 1/ include the following countries with 0.6% of 64 quarters in currency crisis: Honduras, Guatemala, Gambia, The Fiji, Ethiopia, Ecuador, Dominican Republic, Congo, Republic of China, P.R.: Mainland, Chile, Bolivia, Benin, Uruguay, Tunisia, Swaziland, Panama, Pakistan, Nepal, Mauritius, Myanmar, Malta, Morocco, Lesotho, Sri Lanka, India, Grenada, Costa Rica, Colombia, Botswana, Barbados, Burundi.
 Source: Author

Figure 3. Percentage of crisis under different political scenarios.



Note: Include 63 sample countries, percentage over total each crisis type, 87 currency crises, 44 bop crises.
 1/ Indicators of partisanship
 2/ Indicators of government strenght: a lower herfindal is a stronger government, higher measures of majority and strenght mean stronger governments
 3/ Indicators of electoral periods (Executive and legislative) and special interests groups (Executive and general government)
 4/ Indicators of dspecial national, regional and rural interests.
 Source: Database Political Institutions, Calculus Author

Figure 4. Crises and democracy.



Note: Include 63 sample countries, percentage over total each crisis type, 87 currency crises, 44 bop crises.

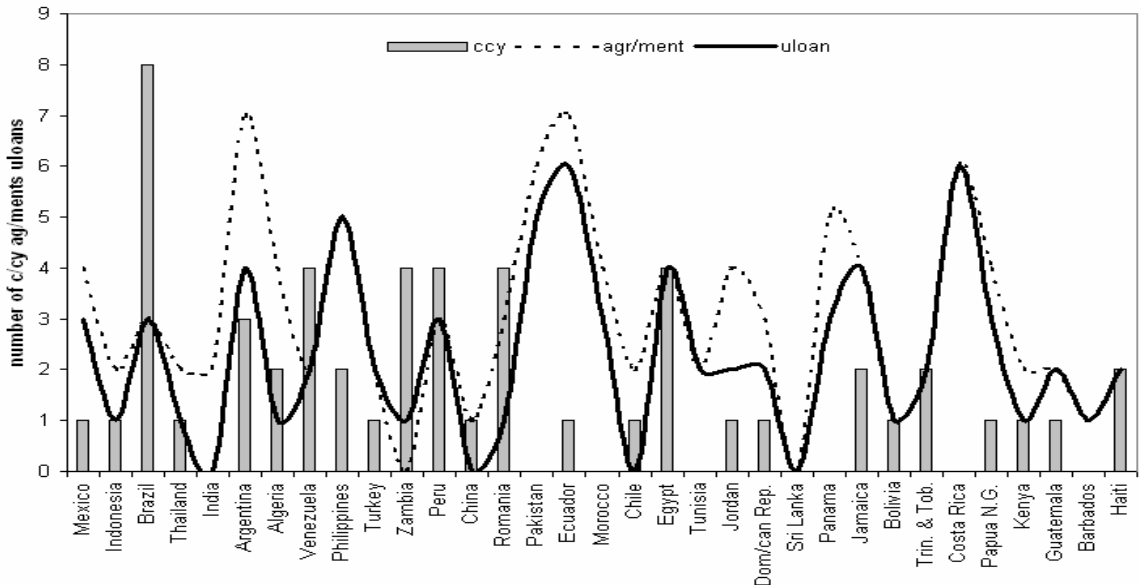
1/Democ = Democ > 3

2/Narrow Democ = 3 < Democ <= 8

3/Strong Democ = Democ > 8

Source: Polity IV Project, calculus Author

Figure 5. Total ag/ments, undrawns balances and currency crises per country.



Note: agreements is the number of SBA, and EFF signed per country; ul oan is the percentage of SBA and EFF whose last tranche was not disbursed and was at least 20% of the initial agreement, a window exclusion of three quarters was used to avoid double counting. Countries have been ranked in descending order by the total amount of SDR purchased from 1985 I to 2000 IV (no shown in the graphic).

Source: IFI, IMF Annual Reports, Calculus Author.

Another relationship of interest is between crises episodes and FSP. Figure 5 shows a rough aggregate per country and time of currency crises, number of agreements under SBA and EFF, and number of undrawn loans. The countries in this figure have been ranked in descending order by the aggregate amount of SDRs purchased between 1985 I and 2000 IV,³⁰ and the undrawn balances have been considered to be the percentage of loans whose non-disbursed balance in the last tranche is more than 20% of the initial agreement. Using this 20% threshold, the figure suggests that a high number of agreements remain uncompleted in the last tranche, which explains the small gap between the number of agreements and undrawn loans. Under the criteria adopted in this study, that the lack of implementation can be captured by the undrawn balances of loans agreed with the IMF, it suggests that a high number of programs were not implemented/completed. Furthermore, looking at specific country cases like Philippines, Ecuador, or Costa Rica, the number of agreements seems to be highly disconnected of the number of crises. In fact, the higher number of agreements in specific country cases suggests that empirical approaches to recidivism practices are well focused (Conway 2002; Hutchison and Noy 2003).

The information depicted in these aggregates gives some clue, albeit imperfect, about the relationship of political variables and FSP with financial crises. For instance, we can infer that a high number of FSP was associated with the agreements depicted in figure 5, and assume the undrawn balances as related with uncompleted FSP. Or we can assume from figure 2 that left governments are more prompted to financial disturbances. But still we do not know how the dynamics of these relationships works like. Whether these characteristics help to surmount or to worse financial crisis is the statistical issue of the next section.

4.3. Econometric Approach

4.3.1. Technical issues

In the econometric approach of the loss function outlined in equation (4) it is usually the amount of the difference between the target and predicted values which is used to assess the quality of the prediction. This can be expressed as follows.

$$l(\bullet) = f(\bullet) - y \equiv \mu \quad (5)$$

Where y has been changed by y^* to make sense that in practice we do not know the optimal value of the objective variable, and the actual loss incurred for the policy maker is associated to the difference between the optimal values for economic and political objectives and the values predicted by a fitted model. The size of this difference is collected through the error term (μ), which measure the loss due to the miss prediction of the target, and the strategy consists in applying a statistical technique such that the expected value of miss prediction is minimized $E(\mu) \equiv 0$.

For the purposes of this paper the loss due to miss prediction is associated to a financial crisis which can be predicted through a set of economic and political variables. We can assume consequently that the probability of financial crisis is conditioned on a set of political and economic variables.³¹

$$P(c_{it} = 1 | y_{it-j}, x_{it-j}, FSP_{it}, D) = F(y_{it-j}, x_{it-j}, FSP_{it}, D) \quad (6)$$

where c_{it} is a subset of y_{it} , a binary variable which is 1 if the country is in crisis and 0 otherwise, y_{it-j} is the set of lagged economic variables we use to control for *fundamentals*; x_{it-j} is the lagged set of political variables; FSP_{it} is a scalar censored to be $0.20 \leq FSP \leq 1$ which measures the percentage of undrawn balances in the last tranche of loans agreed between a given country and IMF; and finally D include time and country specific dummy variables.

The binary characteristic of the crisis indicator implies the use of a probability approach to explain how the percentage probability of a crisis is explained for the change in economic or political conditions. For instance, how many percentage points raise the probability of currency crisis when the rate of inflation is increased in 1 percentage point, or which is the additional percentage of crisis in left or right wing governments when they are compared with center wing governments. I face these issues using a maximum likelihood dprobit model, which reports this kind of changes directly.³²

Dealing with my experiment I will go sequentially as follow, firstly, I will test the influence of a rank of *fundamentals* on the probability of currency crisis and, in successive steps I will test the additional contribution and significance of political variables on this type of crisis. The target is to find the best combination of economic and political variables to explain the probability of crisis under this scenario. In a next step, I will test for the additional effects of uncompleted FSP implementation and, finally, I will replicate the same sort of experiments to the definition of crisis in terms of balance of payments.

In order to solve for endogeneity and selection bias issues in FSP commented previously in this document I use a two stages procedure. This procedure serves two purposes in the estimation of FSP influence on the probability of crisis depicted in equation (6). First, a preliminary, first stage, regression of the probability of FSP incomplection (the probability that $0.20 \leq FSP \leq 1$) on economic and political factors, allows the use of “political proximity” and “political movement” indicators specified in section 4.1 as instrumental variables. Consequently, these instruments allow us to clean uncompleted FSP implementation of any correlation with the residual term in equation (6) which helps to solve for the endogeneity bias.

Second, the first stage estimation helps to predict the probability of FSP incomplection when this variable is unobserved, which helps to solve for the problem of selection bias when we use FSP in equation (6). This is

an appropriate procedure when we have to deal with missing values in the dependent variable, these are treated as unobserved or not selected events which affect the efficiency and consistency of the coefficients, consequently a probability value is assigned to close the bias between values really observed and the missing ones. The observed first stage model for uncompleted FSP is then as follow.

$$FSP_{it} = \alpha_0 + \alpha_1 Y_{it-j} + \alpha_2 X_{it-j} + \alpha_3 vung a_{it-j} + \alpha_4 mvung a_{it-j} + \alpha_4 D + \mu_i \quad (7)$$

Because this model is censored for $0.20 \leq FSP \leq 1$, I use a tobit function for estimation of probabilities. This function is equivalent to split the sample of FSP into two components: the first set contains the values for which the value of FSP is less or equal to 0.2, the second set contains all the observations for which the values of FSP are higher than 0.2. The predicted value for FSP in the first stage, say FSP^{tobit} is used in an equation like (6) to generate the second stage effects of FSP^{tobit} on the probability of financial crises.³³

As an assessment of progress, I follow the common practice looking at the goodness of fit of selected experiments, it is how well a given specification helps to explain the variability of the modelled crises. The sequence of experiments constitutes a test of robustness of the variables in our dataset and other technical issues related with the efficiency and consistency of the estimators are addressed using White robust estimator, to solve for heteroskedasticity problems, and as a rule of thumb, avoiding the use of explanatory variables highly correlated in a given specification. Furthermore, the maximum likelihood approach I am using here help to solve for this latter problem of collinearity.

4.3.2. Results

The first column in table 2 show the results when equation (6) is regressed only on the economic variables in our dataset. Accordingly with the theory currency crises seem to be preceded by exchange rate overvaluation, rise of domestic credit and high inflation although the economic impact of these variables seems to be low. For instance, one percentage point increase in domestic credit growth explains an increment of scarcely 0.0001 percentage points in the probability of currency crises. Overvaluation and inflation effects are a bit larger and significant; they are associated with increments of 0.04 percentage points on the probability of currency crises. The growth of reserves, accordingly with the theory, has a positive and significant impact, 1 percentage point increase in foreign reserves is associated with 0.03 percentage points reduction in the probability of crises. Although the result for exports growth is wrong signed as it suggests that exports growth increase the probability of crisis, it is an important economic variable, consequently I decide do not to delete it from the benchmark.

Though this measure is not generally high in models which combine cross section and time series information, the goodness of fit of this model is low, only 24% of the variability in currency crisis is explained for the given model.

I proceed sequentially in the exploratory analysis of political variables whose results are shown in the second to eight columns of table 2. In the second column government partisanship is tested for left and right wing governments, contrary to our theoretical assumption left wing governments, like right wing do, seems to face a lesser probability of crisis. This result is contrary to the belief that left governments face higher risk of speculative attacks because the higher relative importance they pose on social versus economic outcomes (Brooks 2004). Furthermore, the results suggest that the economic impact of these partisanship is large and statistically significant; in comparison with the basic case (center wing partisanship) left wing governments have a 10% less probability of facing a currency crises.

On the side of right wing governments the result in table 2 corroborates a previous finding by Block who suggests a lesser risk of disaster for these governments, which are typically more compatible with a solid macroeconomic environment. I find that this reduction is around 3% but not statistically significant.

Column three shows the results for government strength, these results coincide to suggest that stronger governments are less associated with the probability of currency crises though only the impact of the percentage of chairs the government has in the parliament (maj) is large and statistically significant, it suggests that an increase of 1% in this variable reduces the probability of crises by 0.14%. The herfindahl index, by the contrary, suggests that a 1% increment in political opposition increase the probability of crisis in 0.02 percentage points. The percentage of votes a president got in the first round of the last elections (strenght) seems to reduce also the probability of crisis, but these effects are extremely low and no significant from the statistical viewpoint. These results are similar to previous findings by Block and coherent with our theoretical assumptions.

The results in the fourth column are along with previous literature regarding the positive relationship between elections and crises (Bussiere and Mulder 1999; Mei 1999; Block 2002). They suggest that currency crises are significantly more probably around electoral dates, when the political instability is more favourable to speculative attacks. Though this result is low, it shows that periods of legislative election have an additional 3% probability of crises versus non electoral periods.

The result in the fifth column suggest that when there are special interest, whether nationalist, regional or rural in the legislative branch of the government, the probability of crises is significantly lesser, the action of interest groups are related here with a reduction of 7% in the probability of crisis versus the scenario without them.

Table 2. Currency crisis under different political scenarios.

	1	2	3	4	5	6	7	8
	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx
overall	0.04** (1.94)	0.07*** (2.77)	0.05 (1.48)	0.02 (1.08)	0.04* (1.69)	-0.02 (-0.50)	0.01 (0.24)	0.07* (1.90)
Dom. Cred.	0.0001*** (2.91)	0.0001* (1.86)	0.01 0.66	0.0001*** (3.20)	0.0001*** (3.06)	0.0001** (2.07)	0.0004* (1.69)	0.001** (2.07)
Res.	-0.03** (-2.20)	-0.04*** (-2.49)	-0.03 (-1.60)	-0.03** (-2.26)	-0.03** (-2.28)	-0.06** (-2.26)	-0.04* (-1.85)	-0.03* (-1.67)
Exp.	0.02 (0.22)	0.01 (-0.44)	0.03 (1.06)	0.003 (0.26)	0.001 (0.07)	-0.02 (-0.65)	-0.02 (-0.56)	-0.03 (-1.10)
Inf.	0.04** (2.11)	0.04** (1.99)	0.03** (2.11)	0.05** (2.11)	0.06** (2.08)	0.05** (2.22)	0.03*** (3.25)	0.02*** (2.77)
left*		-0.10*** (-2.63)					-0.02 (-0.73)	-0.04 (-1.46)
right*		-0.03 (-0.95)					-0.05* (-1.65)	-0.01 (-0.54)
herfgov			0.02 (0.30)				-0.02 (-0.37)	0.08* (2.00)
maj			-0.14** (-2.23)				-0.11* (-1.77)	-0.01 (-0.19)
strenght			-0.0002 (-0.44)				-0.001 (-1.27)	-0.0005 (-1.17)
legel*				0.03** (2.34)			0.06*** (2.89)	
exelec*								0.05** (2.40)
govsp*					0.07** (2.41)		-0.01 (-0.38)	
execsp*								-0.03 (-1.38)
sdem*						-0.03 (-1.18)	-0.04 (-1.45)	
ndem*								0.01 (0.33)
Number obs.	2239	1462	900	2196	2196	1403	657	657
Wald	chi2(70) = 239.43	chi2(57) = 232.63	chi2(46) = 188.70	chi2(69) = 264.28	chi2(69) = 233.32	chi2(57) = 205.64	chi2(44) = 146.92	chi2(44) = 148.43
Prob> chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R2	0.24	0.27	0.34	0.23	0.22	0.26	0.36	0.38

Notes: Country specific and year dummies, no shown, were included in the specification. Data, program in stata v.8 and results are available under request

dF/dx measures the change in percentage points of the dependent variable to 1 percentage point in the explanatory. Economic variables are measured with one lag

(*) dF/dx is for discrete change in dummy variables from 0 to 1

z values that underlying coefficient is 0, in parenthesis. Standar errors corrected by the Huber/White/Sandwich estimator of variance.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

Source: Author

In the sixth column I test the effects of strong democracy on the probability of currency crises. These results fit our theoretical assumption that strong democracies are less exposed to currency disturbances when a comparison is done with less democratic environments under the approach adopted here. It is that strong democracies include a higher executive party subordination than narrow democracies. Although the effect of this variable is low and lack statistically significant, it still suggest that the ambiguity fund in a

previous analysis by Block, could be addressed by differentiating the effects between strong and weak democratic scenarios.

In column seventh I put together all the set of political variables analyzed above, which is roughly a test of robustness. With the exception of herfindal index and the action of legislative interest groups, all the other variables hold the same kind of effects analyzed before; it is the probability of crisis is lesser for right and left wing governments, stronger governments, when there are special interest in the legislative branch and when the country is considered highly democratic and this probability of crises is higher around electoral dates. The effects are generally low and only statistically significant for right wing governments and, the percentage of chairs of the government in parliament and electoral dates.

Furthermore, when we change some variables to analyze the robustness of these effects to executive elections, executive special interest and narrow democracy we corroborate the previous results. It is, electoral dates seems to increase the probability of crisis, but the effect of interest groups, whether in the executive or the legislative branch of the government is still ambiguous. Importantly here the effect of narrow democracy seems to confirm our theoretical assumption that the probability of crisis is higher in that context. Finally, note that the goodness of fit of the latter specifications in columns 7 and 8 explains a higher percentage of variability in financial crisis (36% and 38%) versus the benchmark (24%).

As was explained in the previous section, the effects of uncompleted FSP on the probability of crisis is derived in a two stages procedure in order to address the problems of endogeneity and selection bias. My procedure is equivalent to a Heckman selection model were the first stage estimation is a tobit model for $0.20 < \text{FSP} < 1$ and the second stage uses the predicted probability of incomplection $\text{FSP}^{\text{tobit}}$, the outcome of the first stage, to test its influence on the probability of crisis. The results of the first stage procedure and the Heckman procedure which show that the model is free of selection bias can be found in the annexes 4 and 5.

In the next experiment I test for the effects of $\text{FSP}^{\text{tobit}}$ on the probability of currency crises using the same specification as column seven of table 2. These results are shown in columns a, b and c of table 3, and are along with my theoretical assumption that uncompleted programs area associated with a higher probability of crisis. Although not statically significant these effects seem to be economically much larger contemporaneously that one quarter later, it is column (a) shows that the contemporaneous effect of 1% incomplection in programs (ufsp) is associated with an increase of 0.60 percentage points in the probability of currency crisis, while in column (b) the effect of incomplection one quarter later, is associated just with an increase of 0.05 percentage points. Note also that the results for our political effects hold when we put them together in column (c), particularly the effects of the percentage of chairs the government has in the

parliament (maj) and legislative election are now larger and statistically significant. Furthermore, turning to the goodness of fit issue, table 3 explains a higher percentage of variability in currency crisis (39%).

Table 3. Results two stage instrumented FSP

	(a)	(b)	(c)
	dF/dx	dF/dx	dF/dx
left*	-0.03 (-0.44)	-0.06* (-1.77)	-0.06 (-0.96)
right*	-0.03 (-0.43)	-0.05 (-1.14)	-0.04 (-0.56)
herfgov	-0.09 (-0.89)	-0.05 (-0.90)	-0.08 (-0.96)
maj	-0.22 (-1.22)	-0.26*** (-3.71)	-0.30* (-1.91)
strenght	-0.001 (-1.40)	-0.001 (-1.33)	-0.001 (-1.13)
legel*	0.09*** (2.56)	0.09*** (3.14)	0.10*** (3.00)
govsp*	-0.02 (-0.31)	-0.02 (-0.70)	-0.02 (-0.25)
sdem*	-0.10 (-1.35)	-0.01 (-0.25)	-0.04 (-0.49)
ufsp	0.60 (0.99)		0.36 (0.66)
ufsplead1		0.05 (0.39)	0.02 (0.10)
Number obs.	642	628	626
Wald	chi2(44) = 134.91	chi2(43) = 145.36	chi2(44) = 136.02
Prob> chi2	0.000	0.000	0.000
Pseudo R2	0.39	0.35	0.39

Notes: models a, b and c are second stage tobit results for uncompleted FSP. First stage results are shown in annexes

(*) dF/dx Is for discrete change in dummy variables from 0 to 1, Economic Variables mesured with one lag, ufsplead1 means expectatives of program incompletion z values that underlying coefficient is 0, in parenthesis.

Standar errors corrected by the Huber/White/Sandwich estimator of variance.

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

Source: Author

The results in table 3 come to suggest that the IMF actual influence on the probability of financial crisis is associated to the incomplection of programs for structural reform. The conditions of this incomplection in turn are associated to political circumstances in the borrower countries and political constrains on the

lending practice of IMF. This is a rather a response to the controversy around the effectiveness of FSP on the ability of countries to surmount crises episodes, it is countries under FSP seems to observe a higher probability of crises, but this impact occur in a different way than the exposed by its critics, is the lack of implementation of programs rather their failures the cause of worst financial crises.

The evidence found here help to complement a previous finding by Conway, as we pointed out above Conway found that countries with FSP are able to surmount crisis episodes although this effect is lesser the longer the participation in programs and long participation increases the probability of returning to a crisis state (Conway 2000). The evidence in this document suggests that the latter results may be associated with a reduction in the degree of implementation which consequently increases the probability of speculative attacks.

As we have argued above in this document, the influence of political variables on the probability of financial crises still depends on the definition of crises itself; factors which are important in the explanation of currency crises may be less relevant on other types of crisis. In the case of balance of payments, once more, developing countries face technical requirements about reserve adequacy, which explain why in such cases is more probably the change from fixed to flexible exchange rates than the defence of the parity, regardless the political circumstances of the country.

I investigate this issue by testing the influence of our political variables on balance of payments crises, defined in terms of severe loss of foreign reserves excluding gold. Table 4 show these results which in general terms are contrary to the evidence found in the case of currency crises although generally not large. In particular, these results suggest that the probability of balance of payments crises is higher for both, left and right wing governments versus the base case of center partisanship, and similarly stronger governments seems to be most prone to this type of crises. The effects of legislative elections are ambiguous though curiously negative, as it seems to suggest that electoral dates reduce the room for foreign reserves downturns, the effects of strong democracy are also ambiguous though with more evidence of a positive influence on the probability of crisis. The action of executive and legislative interest groups was dropped in this experiment due to collinearity problems.

With regard the effects of uncompleted FSP the results of my experiment suggest that they are still contemporaneously associated with a higher probability of balance of payments crisis though these effects are much lower than in the case of currency crises and not statistically significant, the effects of incompleteness one quarter later, which we can interpret like the expectative of incompleteness, by the contrary is negative and significant which, again curiously, suggest that when there is an expectation that a program will be broken in the next quarter the probability of balance of payments crises is lesser.

Table 4. Results for BoP crises.

	(a)	(b)	(c)
	dF/dx	dF/dx	dF/dx
left*	0.01* (1.77)	0.03** (2.04)	0.003 (1.04)
right*	0.02 (2.77)	0.04*** (2.57)	0.006* (1.74)
herfgov	0.004 (0.64)	0.003 (0.53)	0.001 (0.43)
maj	0.007 (0.95)	0.01 (1.32)	0.003 (0.67)
strenght	0.00006 (1.23)	0.00005 (0.89)	0.00001 (0.63)
leget*	-0.002* (-1.68)	-0.002* (-1.71)	0.0008 (-1.36)
sdem*	0.0008 (0.37)	-0.003 (-0.90)	0.003 (1.14)
ufsp		0.03 (1.29)	0.01* (1.70)
ufsplead1			-0.01*** (-3.91)
Number obs.	837	812	765
Wald	chi2(35) = 143.74	chi2(36) = 144.96	chi2(35) = 131.31
Prob> chi2	0.000	0.000	0.000
Pseudo R2	0.37	0.37	0.42

Notes: Country specific and year dummies, no shown, were included in the specification. Data, program in stata v.8 and results are available under dF/dx measures the change in percentage points of the dependent variable to 1 percentage point in the explanatory. Economic variables are measured with (*) dF/dx is for discrete change in dummy variables from 0 to 1 z values that underlying coefficient is 0, in parenthesis. Standar errors corrected by the Huber/White/Sandwich estimator of variance.
 *** Significant at 1%, ** Significant at 5%, * Significant at 10%

Source: Author

Aside of issues of statistical significance and size of the estimators that we have found in this exercise, there are important empirical findings which we can summarise as follow: first, left and right wing partisanship face a lower probability of currency crises than center partisanship; second, the probability of currency crises is lower for stronger governments and strong democracies and it is higher for narrow democracies; third, the action of national, regional and rural interest groups on the probability of currency crisis has been found to be ambiguous though with the most of the evidence of a negative relationship; fourth, the results in this work corroborate previous findings about the positive relationship between electoral journeys and the probability of currency crisis; fifth, empirical evidence show that the probability of currency crises is higher for countries with high degree of incompleteness of FSP; sixth, these results are robust for the explanation of crisis in terms of currency crises but contradictory when we define crises in terms of reserves outflows.

5. Implications for Economic Development

Results of the previous section are interesting from a statistical point of view as long as they offer some hint of the causation effects of political factors on the probability of crisis. Practical implications of these outcomes have to do with the question of how international financial architecture can be conducive to a better stage of economic development. I analyze this issue from the side of the political conditions under which crises can be prevented or their consequences smoothed, and the way how FSP can help to prevent/surmount the probability of crises.

From the side of the domestic political circumstance under which crises have occurred, the evidence found here fits well the analyses of comparative studies about the political economy of financial crises. Distributive conflicts between social groups have been said in these studies, constraint the choice of countries for adjustment strategies, whether market oriented policies or a more regulated state driving choice, and determine the rank and sustainability of policy options for economic management (Evans 1992; Waterbury 1992).

As we argued in the theoretical framework, while unpopular economic measures impose political losses in terms of credibility, the option for more popular measures is generally inconsistent with the need for signalling the economy in order to attract international finance. Nevertheless, that result does not seem particularly harder for left wing government than for right wing ones as we assumed in the theoretical approach which suggests that these pressures are independent of the party system.

The dilemma suggests that the ability of the government to face economic failure depends on two aspects: the capacity of widening the group of beneficiaries, it is the way how the poorest can derive benefits from the economic program, and second, the maintenance of the macroeconomic stability. Of course this is something easier to say than to do given the heterogeneity of the political and economic conditions under which decision making is done, for instance, as we concluded from the econometric analysis, political pressure of interest groups may reduce the room for currency crises, that sounds good, but how good are the economic implications of this pressure for the poorest?

Nelson has proposed three channels through which the policy making can affect the well being of the poor, changes in employment status, changes in the prices of the economy and changes in the provision of public services (Nelson 1992). The model I have proposed here does not allow the assessing of those changes directly, but still we can use the econometric outcomes to provide an answer. For instance, the evidence that government strength reduces the probability of crisis is consistent with a scenario where the constituencies support, with their vote, the economic program of the government. Although the

effectiveness of these programs clearly depends on economic and political contingencies, the political support of constituencies suggests that the program fits well the public opinion.

Furthermore, Haggard and Kaufman provided several country specific examples where continuous success of economic policy helps to consolidate the ground for the rule of democracy. It is the popular belief on the effectiveness not only of the government performance but of the system as a whole, which explain why the evidence provided here suggests that strong democracies may be less exposed to the risk of currency downturns. It is, while economic failure is decisive in the transition from authoritarian to democratic regimes, the rule of democracy is shaped on the idea of (effective) channels of social compensation, particularly for the poorest, middle and working classes, and “institutionalized patterns of political representation” which allow the response to economic disturbances to be credible and sustainable on time. (Haggard and Kaufman 1992).

Conversely, elections like protests and social riots offer an opportunity to show social dissatisfaction with the distributional consequences of the economic policy. The political instability associated with electoral cycles depends of the severity of economic conditions, the capacity of parties in conflict to persuade the electorate about the benefits of the proposed adjustment and the generation of social compensation measures. It is voters may be disposed to support unpopular measures if economic conditions are particularly severe, but on time they are going to punish the lack of equity not only on relative terms versus other groups in the society but in relation to pre-crisis standards(Nelson 1992).

On the side of the International Monetary Found, evidence that the incompleteness of FSP increases the probability of crisis has interesting implications for economic development. The critic on the distributional effects of FSP remarks, in short, that orthodox policy measures linked to FSP did not promote but reduced the prospects for economic growth and the ability of domestic governments to protect the interest of the poorest (Kahler 1992). It is beyond the scope of this document to evaluate if that complaint is well or bad founded, nevertheless our focus on the degree of implementation, rather than on the content of the programs, offers a new perspective of analysis.

The positive relationship between incompleteness and the probability of crisis suggest that the conflict between the need for external finance and the political costs associated to implementation played an important role in the decision making. Undoubtedly, financial crises bring a hard time not only for the poorest but for the economy as a whole, nevertheless, if the distributional consequences in the content of the programs are particularly harsh, the policy maker finds easier to regret the compliance than to face the political costs of implementation. As we argued above, the dilemma for policy making depend on the severity of the economic and political contingencies, while weak governments may find easier to subordinate national policies to international organization’s harsh conditions in change for finance, stronger

ones, or those with alternative sources of finance, may have more inclination to preserve their autonomy against external direction (Kahler 1992).

Another criticism comes to say that the design of programs for policy reform overlooks an important element which is that the degree of implementation and the success of programs depend on conditions beyond country's government control and country specific characteristics. Adjustment policies are expected to work if domestic macroeconomic mismanagements are the source of disequilibria, but they are less efficient when disturbances are originated by external shocks such as deterioration in terms of trade, rise of international interest rates and/or growth recession in developed countries (Griffith-Jones and Ocampo 2000).

In short, if the criticism is correct, full implementation like incompleteness confronts distributional consequences. We can not judge on the basis of the econometric evidence which is the best scenario in terms of economic development, but the change in number and content of FSP given during the last decade from macroeconomic performance to pro-poor clauses,³⁴ and the preference for no intervention in countries own strategies for policy reform explain why both, distributional consequences and political sensitivity of borrower countries are becoming important components on the design of programs for structural adjustments and macroeconomic stabilization.

As long as we have shaped FSP as an outcome of political bargaining between borrowing countries and the IMF, our evidence suggests that crises are more probably under a scenario of strong disagreement between FSP stabilization objectives and the political objectives of the borrowing country. It implies in turn that calls for a new international financial architecture should be accompanied by the design of mechanisms conducive to reinforce the political credibility in the completion of programs.

6. Concluding Remarks

- ✓ This document has been focused on explaining the political causes behind the probability of financial crises. In doing that we have argued that the explanatory power of political factors on the probability of crises depends primarily on the definition of what we understand by financial crises. Consequently, two different definitions of crises, one in terms of currency crises and the other one in terms of balance of payments crises has been analysed.
- ✓ The results suggest that indeed that political factors which are robust to explain the probability of currency crises offer ambiguous evidence to the definition of balance of payments crises. We attribute that result to the role of technical requirements and reserve

adequacy policies which make more probably in practice the case for currency downturns than for severe outflows of reserves.

- ✓ For the sample of countries considered here, statistical evidence has been found to be not particularly large, and the statistical significance has been found to depend on the inclusion of other explanatory variables. Notwithstanding these deficiencies, the inclusion of political variables increase significantly the goodness of fit of the econometric model in the prediction of financial crises, and the causality effects are in most of the cases consistent not only with our theoretical prediction but also with the evidence derived from comparative studies in political economy.
- ✓ Three results are particularly important: firstly, the probability of currency crisis is significantly higher around electoral journeys, a result that confirm previous finding in other related studies. Secondly, contrary to our previous theoretical prediction left wing governments, as like right wing does, seems to face a lesser probability of crisis, although no significant, this result suggests that at the end speculative pressures are independent of the party system. Finally, the probability of crisis is lower for stronger democracies and higher for narrow democracies, although no significant as well, this result suggest that ambiguity found in a previous related study highly depends of what we understand for “democracy”.
- ✓ We have argued also that the interaction between domestic political circumstances and financial disturbances can not be analyzed outside of the influence of international financial organizations. Our focus on the degree of implementation rather than on the content of programs suggests a positive relationship between incomplection of FSP and the probability of crises. This result complement the previous finding by Conway with regard the decreasing influence of FSP on the ability of countries to surmount crises episodes and the increasing probability of crises by participation.
- ✓ Our analysis with regard implications for economic development come to suggests that strong governments, those which are able to solve the conflict between the macroeconomic stability and the distributional consequences of the adjustment are prone to face a lower probability of crisis. Furthermore, that downturn will be lower if the rule of democracy is assured which in turn implies that the response to economic disturbances becomes credible and sustainable on time, effective channels of social compensation are assured and there are institutionalized patterns of political representation.

- ✓ Finally our analysis suggests that the prevention of financial crises could be more successful where the design of FSP is based on country specific circumstances and countries own strategies for adjustment and macroeconomic stabilization, and measures of social compensation. It implies in turn that calls for a new international financial architecture should be accompanied by the design of mechanisms conducive to reinforce the political credibility in the completion of programs.

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¹ The literature in this regard is extensive, for some examples see: Robison, R. and A. Rosser (1998). "Contesting Reform: Indonesia's New Order and the IMF." World Development **26**(8): pp. 1593-1609. , Haggard, S. (2000). *Political Economy of the Asian Financial Crisis.* Washington, DC. , Santiso, J. (2003). *The Political Economy of Emerging Markets,* Palgrave MacMillan.

² I have borrowed this expression from Strange, S. (2002). *"International Economics and International Relations: A Case of Mutual Neglect"*. *"Authority and Markets: Susan Strange's Writings on International Political Economy"*. R. Tooze and C. May. Houndmills, Palgrave MacMillan; pp. 187-196.

³ Examples of this literature include Thacker, S. C. (1999). *"The High Politics of IMF Lending."* *World Politics* 52(1): pp. 38-75., Drazen, A. (2002). *"Conditionality and Ownership in IMF Lending: A Political Economy Approach."* *CEPR Discussion Paper 3562*., Stone, R. W. (2002). *Lending Credibility: The International Monetary Fund and the Post Communist Transition*. Princeton, Princeton University Press., Mayer, W. and A. Mourmouras (2005). *"On the Viability of Conditional Assistance Programs."* *IMF Working Paper WP/05/121*.

⁴ Where under this context Moral hazard is interpreted as an intensification of risky behavior in credit practices by countries granted with IMF financial support. Recidivism makes reference to prolonged use of IMF resources, a situation where IMF borrower countries are continuously in need of further financial assistance.

⁵ The conceptual definition for these different crises types has been summarized by Ihsihara(2004): A currency crisis is understood to be a severe downturn in the exchange rate, whilst the Balance of Payment crisis implies a severe loss of foreign reserves.

⁶ I prefer the use of this term to the one of *conditionality* used in the most of the literature to imply that Fund programs does not operate unilaterally but are the result of complex political negotiations with the borrower countries. This idea is borrowed from Killick (1995) who used it in the same fashion.

⁷ The literature has identified a series of political factors which can be decisive on IMF lending behavior, particularly the thesis of "political proximity" highlight that U.S. play a important veto power on lending decisions as long as lending decision is adopted with 85% of votes of member countries and the share of U.S. alone is 18.5%.

⁸ As pointed by Drazen (1998) political models of financial crisis are not the same like self-fulfilling crisis and multiple equilibria crisis models. Nevertheless, that is a discussion I will leave for a posterior stage.

⁹ Two further references contribute to the understanding of the political causes behind a broad range of topics traditionally considered a matter of "pure" economy, the first one Political Economy and Macroeconomics by Allan Drazen, and the second Political Economy: Explaining Economic Policy by Torsten Persson and Guido Tabellini. Both books highlight the fact that decision making procedures are determined for political mechanisms which mirror the interests of the most powerful groups in a society. Nevertheless, Persson and Tabellini are more focused in addressing institutional details behind the decision making and policy comparison affecting for instance business cycles, debt determination and fiscal outcomes, whilst Drazen is most focused in the development of theoretical models relevant to macroeconomics, i.e. interest rate defence and speculative attacks, foreign aid and conditionality, international exchange rate arrangements, policy coordination, political contagion in currency crises. A further revision of these books is provided by Saint-Paul (2000).

¹⁰ A further detail of literature review can be seeing in Santiso (2003).

¹¹ Both of these authors present a more extended bibliographical review in the regard.

¹² In fact the sequence of events is more complex, if the exchange rate is over-valuated in real terms nominal devaluation does not necessarily solve the problem by itself, inflation caused by devaluation policy is possible to counterbalance these nominal effects, political pressure from import competing industries may result in undesirable protectionist practices, export sector may exert pressure for further nominal devaluation and the crowding out effect of a tight monetary policy may worsen the growth gap. Nevertheless, for simplicity of exposition I do not consider such sequence of events here, for a reference on the problems caused by over-valuated exchange rates see for example Shatz, H. J. and D. G. Tarr (2000). *"Exchange Rate Overvaluation and Trade Protection: Lessons from Experience."* *World Bank, Policy Development Research Group Trade. WP 2289*.

¹³ We can characterize this information set more accurately like $X = h(\text{elections, left wing, tenure, democracy etc})$, and $Y = g(e, r, \pi)$.

¹⁴ The sequence of these events not necessarily is contemporaneous; nevertheless in the subsequent formalization I suppress time indicators for easiness of presentation.

¹⁵ Or similarly that at the end the government get an additional payoff for its compliance to market rules.

¹⁶ Indeed the political conflict between domestic countries and FSP has been said to erupt in three directions: *content* of the programs, *nationalist resentment* at the intervention that is implied by conditionality and the existence of *interest groups* which care about the political consequences of implementation. On these issues see for example Kahler, M. (1992). *External Influence, Conditionality, and Policies of Adjustment. The Politics of Economic Adjustment*. S. Haggard and R. R. Kaufman. Princeton, Princeton University Press: pp. 89-138.

¹⁷ A similar argument about the relationship between the probability of currency crises and democracy can be found in Block, S. A. (2002). "*Political Conditions and Currency Crises: Empirical Regularities in Emerging Markets*." Center for International Development at Harvard University CID, Working Paper No. 79. pp. 11-13

¹⁸ For easiness of exposition I skip here the debate about why political factor can affect in a different fashion the probability of currency crises than crises in terms of balance of payments, this is an important issue which deserves a paper by itself. I limit my case here to analyze the statistical robustness of those factors to different definitions of crises. A good approach to the interrelation between these definitions can be found in the referenced works by Ishihara (2004, 2005).

¹⁹ For a detailed understanding of how different policy arrangements and IMF work see for example Thirlwall, A. P. (2003). *Growth and Development: With Special Reference to Developing Economies*, Palgrave, Mac Millan.

²⁰ As proposed in the already reference to Drazen, A. (2002). "*Conditionality and Ownership in IMF Lending: A Political Economy Approach*." CEPR Discussion Paper 3562.

²¹ Roughly, these authors coincide to remark that IMF programs failed to reduce risky behavior in the pre-asian crisis and that the packages of fiscal, credit and structural adjustment made the things even worse for these economies through higher interest rates and punitive tax rates which quickly lead to bankruptcies and massive deflation of demand, which give some insight about the negative impact of programs during crisis periods.

²² For example Haggard points out that critics of IMF mistakenly assume that programs were in fact implemented and base the critique on counterfactual (alternative programs and alternative government) which in practice depends of a complex interaction of political and economic factors.

²³ For a complete revision of methodological approaches and previous empirical results, although update only to 1995, see Killick (1995) and Bird (1995, 2004). A more recently revision of this literature is provided by Haque and Khan (1998).

²⁴ The procedure consists first in calculating the deviation of each variable from the average during the last 20 quarters; second, this deviation is divided on the standard deviation for the same period; third, a period is considered crisis when this result is higher than 3; finally, the three quarters window exclusion is applied. I used alternatively a threshold of 2 standard deviations and the results are robust to the change, the advantage to use a threshold of 2 standard deviations is that it allows the identification of a higher number of episodes for balance of payments crises.

²⁵ See Marshall and Jagers (2003) at <http://www.cidcm.umd.edu/inscr/polity>

²⁶ In fact I use the mobil average of these overvaluation for the last four quarters in order to smooth the effect of outliers.

²⁷ This information can be also drawn from www.unbisnet.un.org. In order to measure "political proximity" votes are value as 1 when they are identical to the United States vote, 0 when they are opposite, and 0.5 in the case of abstentions/absences, the final record is obtained by summing these figures and dividing the result by total votes. "political movement" on the other side (MVUNGA), is simply the quarterly change observed in the "political proximity", a measure of how a given country becomes politically closer/distant from the United States, on this issue see Thacker, S. C. (1999). "*The High Politics of IMF Lending*." *World Politics* 52(1): pp. 38-75.

²⁸ Except for the herfindal index of government opposition where clearly currency crises are relative more probable than balance of payments, the other two measures of government strength show that relatively currency crises are more probable in stronger governments.

²⁹ For the purpose of this document narrow democracy is measure as $3 \leq \text{Democ} \leq 8$, and strong democracy like indicators $9 \leq \text{Democ}$. These variables are referenced by Polity IV Project pp 12 and sgtes, see Marshall, M. G. and K. Jaggers (2003). "*Polity IV Project: Political Regime Characteristics and Transitions, 1800-2002.*" Center for International Development an Conflict Management (CIDCM) University of Maryland. www.cidcm.umd.edu/inscr/polity.

³⁰ The drawing procedure in IMF lending terminology is called a purchase; countries get loans by exchanging their own currency for SDRs held by the Fund over a time period. The amount agreed is disbursed in tranches typically subject to performance and/or structural conditions. See IMF articles of agreement in www.imf.org

³¹ A further explanation of the equation 6 is as follows. We assume to exist a latent variable c_{it} and a threshold K^* , the values of the latent variable are thought to be 1=crisis after the defined threshold and 0=tranquility under that threshold. The probability of financial crises is derived as follow.

$$\begin{aligned} \Pr(c_{it} = 1 | y_{it-j}, x_{it-j}, \text{FSP}_{it}, D) &= \Pr(\alpha_1 y_{it-j} + \alpha_2 x_{it-j} + \alpha_3 \text{FSP}_{it} + \alpha_4 D + \mu_i > K^*) \\ &= \Pr(\mu_i > -\alpha_1 y_{it-j} - \alpha_2 x_{it-j} - \alpha_3 \text{FSP}_{it} - \alpha_4 D + K^*) \\ &= F(-\alpha_1 y_{it-j} - \alpha_2 x_{it-j} - \alpha_3 \text{FSP}_{it} - \alpha_4 D) \end{aligned}$$

where F is the c.d.f. for the error term and the other variables remain as defined in the main text.

³² dprobit reports the change in the probability for an infinitesimal change in each independent continuous variable and, by default, the discrete change in the probability for dummy variables. See www.stata.com

³³ For theoretical issues regarding the use of two stage estimation methods see for example Maddala, G. S. (1983). *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge University Press.

³⁴ See for instance the well documented analysis on the role and changes of conditionality in Dreher, A. (2002). "*The Development and Implementation of IMF and World Bank Conditionality.*" Hamburg Institute of International Economics, Discussion Paper 165.

Annex A1.

Countries considered.

Countries

Algeria	Malaysia
Argentina	Malta
Barbados	Mauritius
Benin	Mexico
Bolivia	Morocco
Botswana	Myanmar
Brazil	Nepal
Burundi	Nicaragua
Chile	Nigeria
China,P.R.	Oman
Colombia	Pakistan
Congo, Rep.	Panama
Costa Rica	Papua N.G.
Dom/can Rep.	Paraguay
Ecuador	Peru
Egypt	Philippines
El Salvador	Romania
Ethiopia	Rwanda
Fiji	Sierra Leone
Gambia,	Sri Lanka
Grenada	Sudan
Guatemala	Swaziland
Haiti	Tanzania
Honduras	Thailand
India	Trin. & Tob
Indonesia	Tunisia
Jamaica	Turkey
Jordan	Uganda
Kenya	Uruguay
Lesotho	Venezuela
Madagascar	Zambia
Malawi	

Source: Author

Annex A2.

Data sources.

Variable	Source
Economic Variables	
Exchange rate	IMF, IFS line AE
Foreign reserves minus gold	IMF, IFS line 1L.D
Domestic credit	IMF, IFS line 32
Exports FOB	IMF, IFS line 70
Inflation CPI	IMF, IFS line 64
<hr/>	
Political Variables	
Left partisanship	Beck, T., G. Clarke, et al. (2001). Left
Right partisanship	Beck, T., G. Clarke, et al. (2001). Right
Executive elections	Beck, T., G. Clarke, et al. (2001). Exelec
Legislative elections	Beck, T., G. Clarke, et al. (2001). Legel
Herfindalh government	Beck, T., G. Clarke, et al. (2001). Herfgov
Government Strength	Beck, T., G. Clarke, et al. (2001). Strenght
Majority	Beck, T., G. Clarke, et al. (2001). Maj
Democracy	Marshall, M. G. and K. Jagers (2003). Polity IV, Project
Vunga	www.unbisnet.un.org .
<hr/>	
FSP	
SBA and EFF undrawn balances	IMF, IFS lines AS, AT, Annual reports

Source: Author

Annex A3.

Crises identification.

Country	Coy	Eop	Country	Coy	Eop
Argentina	1988q1 1989q2 1990q2	1985q3	Malta		
Benin	1994q1	1990q2	Myanmar		
Bolivia	1985q4		Mauritius		
Brazil	1987q2 1988q2 1989q2 1990q2 1991q3 1993q1 1994q1 1999q1	1992q1	Malawi	1992q2 1994q4 1998q3	1994q1
Barbados		1992q3	Malaysia	1997q3	1992q3
Chile	1985q3		Nigeria	1986q3 1992q1 1999q1	1989q4 1995q3
China,P.R.	1994q1		Nicaragua	1985q1 1986q1 1988q1 1989q1 1990q2	
Congo, Rep.	1994q1	1993q2 1994q3 2000q1	Oman	1986q1	
Costa Rica			Pakistan		1992q1 1994q2
Dominican Rep.	1985q1	1991q4	Panama		1990q2
Algeria	1988q2 1991q1	1991q3	Peru	1985q1 1988q3 1989q3 1990q3	
Ecuador	1999q1		Philippines	1990q3 1997q3	1985q3
Egypt	1989q3 1990q3 1999q4 2000q4	1987q4 1990q3	Papua N.G.	1994q3	1995q3
Ethiopia	1992q4	1991q2	Paraguay	1989q1	
Fiji	1998q1		Romania	1990q1 1991q2 1992q2 1997q1	1986q4
Gambia,	1986q1	1986q4	Rwanda	1990q4 1995q1	1991q4
Guatemala	1986q2		Sudan	1991q4	1986q1 1993q1
Honduras	1990q2	1991q1	Sierra Leone	1985q1 1986q2 1990q1	1986q1
Haiti	1991q3 2000q3	1987q2 1992q1	El Salvador	1986q1	1998q1
Indonesia	1997q3		Thailand	1997q3	
India		1991q4	Trin. & Tob	1985q4 1993q2	1989q1 1995q2
Jamaica	1989q4 1991q3	1985q1 1992q3	Tunisia		1987q2
Jordan	1988q4	1989q2	Turkey	1994q1	1995q1
Kenya	1993q2	1993q2	Tanzania	1986q2	
Sri Lanka		1990q2	Uganda	1985q4 1987q2 1988q3	
Morocco			Uruguay		1993q1
Madagascar	1987q2 1994q2		Venezuela	1986q4 1989q1 1994q2 1996q2	
Mexico	1994q4		Zambia	1985q4 1986q4 1992q4 1994q1	1985q4 2000q4

Source: Author

Annex A4.

Correlation matrix.

Variable	overval	Dom. Cred.	Res.	Exp	Inf.	left	right	herfgov	maj	strenght	exelec	legel	execsp	govsp	ndem	sdem	FSP
overval	1.00																
Dom. Cred.	-0.03	1.00															
Res.	0.01	0.10	1.00														
Exp	-0.01	0.04	0.17	1.00													
Inf.	-0.20	0.23	0.17	-0.04	1.00												
left	-0.17	0.01	-0.03	0.09	-0.10	1.00											
right	0.14	-0.01	0.06	-0.16	0.13	-0.84	1.00										
herfgov	0.24	0.01	0.14	0.07	-0.20	0.16	-0.19	1.00									
maj	-0.04	-0.05	0.04	-0.01	0.09	-0.10	-0.01	-0.47	1.00								
strenght	0.06	0.09	0.19	-0.04	-0.18	0.24	-0.14	0.42	0.04	1.00							
exelec	0.07	0.04	-0.16	-0.03	0.10	-0.09	0.10	-0.13	0.02	-0.22	1.00						
legel	0.20	0.01	-0.09	0.03	-0.12	0.03	-0.04	-0.03	-0.07	-0.13	0.60	1.00					
execsp	0.61	0.00	-0.05	-0.04	-0.10	-0.25	0.30	0.03	-0.23	-0.09	0.11	0.27	1.00				
govsp	0.36	0.00	-0.07	0.02	-0.12	-0.29	0.34	-0.09	-0.11	0.01	0.11	0.23	0.89	1.00			
ndem	0.28	0.09	-0.04	0.09	0.08	-0.42	0.27	0.05	-0.11	0.00	0.07	0.00	0.24	0.25	1.00		
sdem	-0.25	-0.11	-0.07	-0.09	-0.07	0.16	-0.04	-0.22	0.09	-0.18	-0.01	-0.03	-0.18	-0.19	-0.83	1.00	
FSP	-0.08	0.07	-0.14	-0.07	0.04	-0.24	0.14	-0.05	-0.16	-0.16	0.04	-0.04	-0.06	-0.09	-0.02	0.20	1.00

Source: Author

Annex A5.

First stage tobit result for currency crises.

Fitting full model:

```
Iteration 0: log pseudo-likelihood = -19.274498
Iteration 1: log pseudo-likelihood = -17.961745
Iteration 2: log pseudo-likelihood = -17.9587
Iteration 3: log pseudo-likelihood = -17.9587
```

```
Interval regression                               Number of obs =          69
                                                Wald chi2(13) =       232.53
Log pseudo-likelihood = -17.9587                Prob > chi2 =         0.0000
```

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
overa	.4673915	.1363721	3.43	0.001	.2001071	.7346759
dlcred	.0023342	.0004649	5.02	0.000	.0014229	.0032454
dlres	-.0697586	.0267138	-2.61	0.009	-.1221168	-.0174005
dlexp	-.7855814	.2067543	-3.80	0.000	-1.190812	-.3803505
dlpi	.0132368	.0113595	1.17	0.244	-.0090274	.0355011
lvunga	-.258123	.2189938	-1.18	0.239	-.6873431	.171097
mvunga	-.4103641	.1284808	-3.19	0.001	-.6621818	-.1585463
left	-.2442216	.1481547	-1.65	0.099	-.5345994	.0461562
right	-.2273655	.1515711	-1.50	0.134	-.5244395	.0697085
maj	-.4745859	.2472841	-1.92	0.055	-.9592537	.010082
legel	.0121267	.1022859	0.12	0.906	-.18835	.2126034
govsp	-.1789488	.2002796	-0.89	0.372	-.5714897	.2135921
sdem	.3008768	.0838002	3.59	0.000	.1366315	.4651222
_cons	1.185247	.1960741	6.04	0.000	.8009493	1.569546
/lnsigma	-1.269122	.1136348	-11.17	0.000	-1.491842	-1.046402
sigma	.2810784	.0319403			.2249579	.3511992

```
Observation summary:      58 uncensored observations
                          11 left-censored observations
                           0 right-censored observations
                           0 interval observations
```

Annex A6.

Heckman procedure for currency crises.

```

Heckman selection model          Number of obs   =    957
(regression model with sample selection)  Censored obs   =    315
                                          Uncensored obs =    642

                                          Wald chi2(44)  =   189.51
Log likelihood = -635.2077          Prob > chi2    =    0.0000
  
```

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
event1d					
overa	-.3237219	.108059	-3.00	0.003	-.5355137 -.11193
dlored	-.0000223	.0016727	-0.01	0.989	-.0033007 .0032561
dlres	-.0490123	.0277175	-1.77	0.077	-.1033376 .005313
dlxp	.2782196	.1654647	1.68	0.093	-.0460853 .6025245
dlpi	.0087567	.0034395	2.55	0.011	.0020154 .015498
left	-.040132	.0769577	-0.52	0.602	-.1909858 .1107219
right	.0535419	.0701537	0.76	0.444	-.0838568 .1911406
herfgov	-.11869	.0962758	-1.23	0.218	-.3073871 .0700071
maj	-.326524	.1524218	-2.14	0.032	-.6253652 -.0278828
strenght	-.0018967	.0008568	-2.21	0.027	-.0035761 -.0002173
legel	.0655495	.0291335	2.25	0.024	.0084489 .1226501
govsp	.125137	.072878	1.72	0.086	-.0177012 .2679752
sdem	-.2306511	.0881133	-2.52	0.009	-.4033501 -.0579521
UFSPhat	.9268006	.4898714	1.89	0.059	-.0333297 1.886931
_cons	-.2321264	.4188465	-0.55	0.579	-1.053051 .5887979
select					
lvunga	-.6300123	.2666871	-2.36	0.018	-1.152709 -.1073152
mvunga	-.5315875	.1975836	-2.69	0.007	-.9188442 -.1443309
overa	.5812521	.1731979	3.36	0.001	.2418004 .9207237
dlored	-.0039591	.0084858	-0.47	0.641	-.0205909 .0126727
dlres	.2515371	.0910295	2.75	0.006	.0731227 .4299516
dlxp	.1950312	.2177265	0.90	0.370	-.2317049 .6217672
dlpi	-.024154	.0095053	-2.51	0.012	-.04298 -.005328
left	-.1301801	.1613955	-0.81	0.420	-.4465094 .1861493
right	-.0878069	.1492488	-0.59	0.556	-.3803291 .2047154
herfgov	.3110314	.1924639	1.62	0.106	-.0661909 .6882537
maj	.0640332	.2808171	0.23	0.820	-.4863583 .6144246
strenght	-.0068896	.0025837	-2.67	0.008	-.0018257 .0119536
legel	-.2510384	.1023524	-2.45	0.014	-.4516454 -.0504314
govsp	.6125356	.2055445	2.98	0.003	.2096757 1.015395
sdem	.2920978	.1104514	2.64	0.008	.0755975 .5085982
_cons	.2358312	.3152593	0.75	0.454	-.3820556 .853728
/athrho					
/athrho	-.0188322	.1832594	-0.10	0.918	-.3780336 .3403692
/lnsigma					
/lnsigma	-1.311281	.0279642	-46.89	0.000	-1.36509 -1.256472
rho					
rho	-.01883	.1832044			-.3609985 .3278069
sigma					
sigma	.2694747	.0075355			.2551025 .2846555
lambda					
lambda	-.0050742	.0493782			-.1018537 .0917053
LR test of indep. eqns. (rho = 0): chi2(1) = 0.01 Prob > chi2 = 0.9212					

Annex A7.

Heckman procedure for BoP crises.

```

Heckman selection model          Number of obs   =    976
(regression model with sample selection)  Censored obs   =    164
                                          Uncensored obs =    812

                                          Wald chi2(37)  =    14.18
Log likelihood = 206.3522          Prob > chi2    =    0.9997
  
```

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
eventld					
overa	-.0132182	.0230095	-0.57	0.566	-.058315 .0318797
dlored	-.0002813	.0009263	-0.30	0.761	-.0020969 .0015343
dlres	-.0263604	.0107031	-2.46	0.014	-.0473381 -.0053827
dlexp	.0369449	.0296656	1.25	0.213	-.021179 .0950689
dlpi	.0025051	.0012061	2.08	0.038	.0001412 .004869
left	-.0015323	.0210309	-0.07	0.942	-.0427521 .0396874
right	.007972	.0185779	0.43	0.668	-.0284401 .044384
herfgov	-.0035336	.0106898	-0.33	0.741	-.0244851 .017418
maj	.0056494	.0221588	0.25	0.799	-.0377812 .0490799
strenght	.0001582	.0003014	0.52	0.600	-.0004325 .0007488
legel	-.0011093	.012765	-0.09	0.931	-.0261282 .0239097
govsp	-.0033241	.0222992	-0.15	0.882	-.0470297 .0403815
sdem	-.0030532	.0156524	-0.20	0.845	-.0337313 .027625
UFSPhat	.0330986	.0448967	0.74	0.461	-.0548974 .1210945
_cons	-.0323686	.0513651	-0.63	0.529	-.1330424 .0683052
select					
lvunga	-.0885912	.1680099	-0.53	0.598	-.4178845 .2407022
mvunga	-.0480575	.1113234	-0.43	0.666	-.2662473 .1701324
overa	-.0415337	.1285415	-0.32	0.747	-.2934704 .210403
dlored	-.0023216	.0063261	-0.37	0.714	-.0147206 .0100774
dlres	-.172414	.0657839	-2.62	0.009	-.3013482 -.0434799
dlexp	.159917	.1662662	0.96	0.336	-.1659391 .4857732
dlpi	.0152838	.0073557	2.08	0.038	.0008669 .0297006
left	-.0517667	.1193903	-0.43	0.665	-.2857573 .182234
right	.0061341	.1070606	0.06	0.954	-.2037009 .2159691
strenght	.0006887	.0018974	0.36	0.717	-.0030302 .0044076
legel	-.0028743	.0784824	-0.04	0.971	-.156697 .1509483
govsp	-.0077982	.1390313	-0.06	0.955	-.2802945 .2646981
sdem	.0185288	.0858629	0.22	0.829	-.1497595 .1868171
_cons	.0625176	.1692421	0.37	0.712	-.2691909 .394226
/athrho	16.64717	147.8252	0.11	0.910	-273.0849 306.3792
/lnsigma	-1.813669	.025599	-70.85	0.000	-1.863842 -1.763496
rho	1	2.07e-12			-1 1
sigma	.1630548	.004174			.1560767 .1714445
lambda	.1630548	.004174			.1548738 .1712358

```

LR test of indep. eqns. (rho = 0):   chi2(1) = 434.32   Prob > chi2 = 0.0000
  
```