DISCUSSION PAPER SERIES

No. 2724

HOW RISKY IS FINANCIAL LIBERALIZATION IN THE DEVELOPING COUNTRIES?

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INTERNATIONAL MACROECONOMICS

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HOW RISKY IS FINANCIAL LIBERALIZATION IN THE DEVELOPING COUNTRIES?

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ABSTRACT

How Risky is Financial Liberalization in the Developing Countries?*

This Paper looks at the effect of domestic and external financial liberalization. Using a sample of 27 developing and developed countries, it studies the exchange market pressure and output gap effects of liberalization. The results show that developing and developed countries differ in many respects. By and large, the effects are significantly stronger in developing countries. Exchange market pressure seems to be strongly positive as capital flows, but reversals seem to follow systematically. Similarly, the behaviour of the output gap corresponds well to boom and bust cycles. The Paper concludes with a discussion of policy measures desirable to make liberalization safer than it has been so far.

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Submitted 12 February 2001

NON-TECHNICAL SUMMARY

Financial crises could occur anywhere in the world, though they now seem limited to developing countries. While contagion used to spread crises among the large financial centres, it now affects developing countries on a regional basis, sometimes even mysteriously on a worldwide basis. While crises could once have been unmistakably linked to serious macroeconomic policy mismanagement, now they hit countries with no serious imbalances. These changes carry profound implications. They challenge the wave of capital liberalization observed over the last decade. They affect the way developing countries carry out policy, including at the deeper, structural level. They require new thinking among the international financial institutions and in particular those of their most directly affected shareholders, the developed countries. They also affect banks and financial institutions that have moved significant parts of their activity to emerging markets.

Since the heyday of Reagan-Thatcher activism, developing countries have been encouraged to establish financial markets and integrate themselves into world markets. The reasoning behind the push is based on a straightforward implication of first economic principles: financial markets allow the proper allocation of saving to productive investment, be it at the national or international level. Financial repression discourages saving and/or encourages capital flight. Borrowing on non-market terms often results in investment spending of poor quality since borrowers are not selected on the merit of their projects but on questionable criteria, which include particular connections with financial institutions and governments, sheer political power or corruption. Insulated financial markets prevent access to cheaper resources and are often characterized by poor competence borne out of lack of adequate competition and supervision.

All these arguments are uncontroversial, in theory. But it is by no means obvious that first economic principles apply to the real world, especially to emerging market economies, as forcefully noted by Diaz-Alejandro (1985). These principles are developed for simple cases and based on exacting assumptions regarding the economic structure and the political environment. Some assumptions may be acceptable for some countries, but not for others. The presumed efficiency of financial markets is predicated on the existence of many intermediaries with the ability to collect and process all relevant information. It also assumes that goods markets function properly. If any of these conditions is violated, the benefits of operating large and integrated financial markets can be called into doubt.

In fact, financial markets tend to behave erratically at times. The first responses are regulation and supervision. This is indeed the direction taken in the developed countries where, after several decades not free from crises, a corps of savvy and honest administrators manage to keep the information

asymmetry problem manageable. This should also be the goal pursued by the developing countries, but it takes time to reach the stage where financial markets can be freed and integrated. What can be done, in the meantime?

Two approaches have been proposed and implemented. The first one aims at a gradual process of liberalization, starting with domestic financial markets and moving cautiously on to external integration. The premise is that financial markets can only be built up gradually and that they must have achieved enough resilience to meet the risks associated with the next step before it is taken, which is a matter of decades, not months or years. This has been the approach adopted in post-war Europe where capital account liberalization was not completed until the end of the 1980s. The second approach aims at a rapid, *erga omnes* liberalization. The premise is that financial repression serves powerful private and political interests apt to thwart serious reforms, and that only a 'kick in the anthill' will unleash liberalization. This approach, which has been added to the 'Washington consensus', has been applied in a number of transition countries. Viewed from the angle of macroeconomic stability, both approaches have occasionally been followed by deep currency crises, for example the EMS crisis of 1992–3 and the Southeast Asian crisis of 1997–8. In each case, special factors have been advanced to explain each crisis seen as one of its kind, implicitly denying that the path to free markets is inherently dangerous.

The present Paper asks whether financial liberalization is hazardous. It studies the experience with liberalization in a sample of 27 developing and developed economies, attempting to detect whether exchange rate instability, possibly culminating in full-blown currency crises, is a standard outcome. It adds to the existing literature in four respects. First, it moves away from the binary coding used to identify crises, thus ignoring the difference between big and small ones. Second, it takes into account both domestic and external financial restrictions. This is quite important since the sequencing literature draws a sharp distinction between these two kinds of restriction. As they often coexist, it may well be that estimates obtained using only external restrictions in fact measure the combined impact of domestic and external restrictions. Third, it looks separately at various instruments designed to restrict financial markets. Each instrument is binary-coded, thus ignoring its many shades, but the overall intensity of restriction is probably better captured than with a single binary index. Finally, it estimates in parallel the impact of liberalization in developed and developing countries. These distinctions are found to matter a great deal.

This Paper looks only at currency crises, leaving aside banking crises, and the role of domestic financial restraints and various external controls. The focus is on the effects of liberalization, disregarding the level of remaining ongoing restrictions.

The hypothesis that crises are the same for developing and developed countries is strongly rejected. This suggests that financial restrictions may operate differently when countries differ. This result is not surprising in light of previous studies that report the importance of institutions and political characteristics.

While it cannot be asserted that liberalization *per se* causes currency crises, it can still be a contributing factor. It takes many years for the effects to stabilize. Liberalization measures typically work themselves out over about 5–6 years, often swiftly oscillating between reducing and increasing exchange market pressure. Liberalization appears as a long-lasting source of exchange market instability.

The restrictions, whose lifting produces sizeable exchange market pressure effects, are those that affect the domestic financial markets and the capital account. The other liberalization moves appear as quite innocuous. The long-run effect of liberalization on exchange markets is positive (less pressure or a tendency to appreciate). The long-run effects are negligible for the other restrictions. The standard 'textbook' presumption that liberalization helps in the long run is borne out by the present results.

The short-run effect on exchange market pressure is also favourable, but a reversal tends to occur after a few years. This result nicely matches the observation of capital inflow surges following comprehensive liberalization, as well as the tendency toward a subsequent reversal. This is in line with our understanding of the dangers of sizeable inflows. Focusing on the all-important capital account liberalization, while the exchange market pressure effects remain favourable in comparison with the pre-liberalization period, the delayed reversal is sizeable. It is not powerful enough to trigger a crisis on its own, but the magnitude is such that it can make all the difference between moderate pressure and a full-blown crisis. This comforts both those who claim that capital controls are not enough to thwart a looming crisis and those who claim that the controls can be a useful additional instrument.

What are the implications of the findings?

First, if financial restrictions shield the foreign exchange markets from speculative pressure, what are the risks of liberalization? The view that restrictions cannot prevent the collapse of an exchange rate target when the underlying macroeconomic policies are unsustainable is borne out by the present results. But these results also vindicate those who claim that liberalization opens up a window of fragility that can last several years. In and of themselves, the exchange market effects of liberalization are too small to generate a crisis, but the see-saw effect on exchange market pressure can easily wrong-foot the authorities – and their advisors from international financial organisations – tipping the odds in favour of a currency crisis. This is

primarily the case with capital account liberalization, which emerges as the most sensitive step.

Second, proponents of liberalization argue that post-liberalization crises are the consequence of misguided policies and practices. Recent research has indeed documented the deleterious effect of poor financial regulation and supervision, of corruption, poor property rights and opaqueness in business dealings at a time when liberalization brings the role of markets to the fore. This may explain the generally stronger impact of liberalization on currency pressure in developing countries. Similarly, there is evidence that the capital inflow problem is less severe and better handled in developed countries where credit growth in particular is better held in check. Opponents of hasty liberalization will retort that fiscal discipline rises after liberalization, and more so in the developing than in the developed countries. Rather than bad policies or bad institutions, it could be that developed countries face a harsher liberalization shock because of initial conditions: capital may simply flow more vigorously into where it is scant and where external private indebtedness is low. At this stage, we simply do not know which is the proper interpretation.

Third, liberalization is found to reduce foreign exchange pressure in the long run, but is initially a source of instability, which can last for several years. The effect is of a first order of magnitude in the case of domestic and capital account liberalization, and stronger in developing than in developed countries. Thus, from the viewpoint of exchange rate stability, it pays to liberalize, eventually.

Fourth, it remains surprising how little we explain of crises. The estimates explain barely 40% of exchange market pressure fluctuations. Importantly, the usual indicators of policy or banking sector misbehaviour are rarely found to be significant. The inescapable conclusion is that much of the action lies elsewhere, and we don't know where. To date, the best hypothesis is that crises are often of a self-fulfilling nature. Self-fulfilling crises do not affect fully innocent victims, but it is only fair to acknowledge that we are far from having developed an exhaustive list of sins. Most countries are potentially guilty of something; when they liberalize their financial markets they are potentially about to face a currency crisis, but no one knows for sure of what they are guilty. Financial restrictions may not be the second best response to market failures, but measures that limit the collateral damage created when those markets fail should not be ruled out.

Fifth, if liberalization is not doing much good, it is not found to do any harm either, at least in the long run. In that sense, it should be considered as a desirable step unless it can be shown to carry shorter-run adverse effects. The relevant question, therefore, is whether the road to free markets is bumpy enough to deter the trip. In this section, rather than focusing on long-term growth, I ask the following question: given that liberalization is often followed by a crisis, and that crises typically lead to sharp recessions, is it worth it? Are

there short- or medium-run output costs of liberalization and, if so, how deep are they? To that effect, I look at the evolution of the output gap, deliberately ignoring the trend effect.

Sixth, the immediate aftermath of liberalization is characterised by a boom, especially strong in the developing countries (nearly 15% of GDP following capital account liberalization) in the case of liberalization of the capital account. The boom is followed by a sharp contraction. It is likely that this pattern again reflects the capital inflow problem, including the eventual reversal. The overall impact, e.g. the output gap accumulated over 10 years, is positive in the case of the developing countries (moderately negative in the case of the developed countries), no matter how violent the fall in periods 3–6.

1. Introduction

Something has changed in the world of financial crises.[1] While crises could occur anywhere in the world, they now seem circumscribed to developing countries. While contagion used to spread crises among the large financial centers, it now affects developing countries on a regional basis, sometimes even mysteriously on a worldwide basis. While crises could unmistakably be linked to serious macroeconomic policy mismanagement, now they hit countries with no serious imbalances.

These changes carry profound implications. They challenge the wave of capital liberalization observed over the last decade. They affect the way developing countries carry out policy, including at the deeper, structural level. They require new thinking among the international financial institutions and in particular those of their most directly affected shareholders, the developed countries. They also affect banks and financial institutions which have moved significant parts of their activity to emerging markets.

Since the heydays of Reagan-Thatcher activism, developing countries have been encouraged to establish financial markets and integrate themselves to world markets. The reasoning behind the push is based on a straightforward implication of first economic principles: financial markets allow the proper allocation of saving to productive investment, be it at the national or international level. Financial repression discourages saving and/or encourages capital flight. Borrowing on non-market terms often results in investment spending of poor quality since borrowers are not selected on the merit of their projects but on questionable criteria which include particular connections with financial institutions and governments, sheer political power or graft. Insulated financial markets prevent access to cheaper resources and are often characterized by poor competence borne out of lack of adequate competition and supervision.

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It is well-known that, due to a serious problem of asymmetric information (Greenwald et al. (1984)), financial markets tend to behave erratically at times. The first best response to asymmetric information is regulation and supervision. This is indeed the direction taken in the developed countries where, after several decades not free of

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[1] For an overview of a century of crises, see Bordo et al. (2001).

crises, a corps of savvy and honest administrators manage to keep the information asymmetry problem manageable. This should also be the goal pursued by the developing countries, but it takes time to reach the stage where financial markets can be freed and integrated. What can be done, in the meantime?

Two approaches have been proposed and implemented. The first one aims at a gradual process of liberalization, starting with domestic financial markets and moving cautiously on to external integration. The premise is that financial markets can only be built up gradually and that they must have achieved enough resilience to meet the risks associated with the next step before it is taken, which is matter of decades, not months or years. This has been the approach adopted in postwar Europe where capital account liberalization was not complete until the end of the 1980s (see Wyplosz, 2001). The second approach aims at a rapid, *erga omnes* liberalization. The premise is that financial repression serves powerful private and political interests apt at thwarting serious reforms, and that only a "kick in the anthill" will unleash liberalization. This approach, which has been added to the "Washington consensus", has been applied in a number of transition countries. Viewed from the angle of macroeconomic stability, both approaches have occasionally been followed by deep currency crises, for example the EMS crisis of 1992-93 and the South-East Asian crisis of 1997-98. In each case, special factors have been advanced to explain each crisis seen as one of its kind, implicitly denying the path to free markets is inherently dangerous.

The present paper asks whether financial liberalization is hazardous.[2] It studies the experience with liberalization in a sample of 27 developing and developed economy, attempting to detect whether exchange rate instability, possibility culminating into full-blown currency crises, is a standard outcome. It adds to the existing literature in four respects. First, it moves away from the binary coding used to identify crises, thus ignoring the difference between big and small ones. Second, it takes into account both domestic and external financial restrictions. This is quite important since the sequencing literature draws a sharp distinction between these two kinds of restriction. As they often coexist, it may well be that estimates obtained using only external restrictions in fact measure the combined impact of domestic and external restrictions. Third, it looks separately at various instruments designed to restrict financial markets. Each instrument is binary-coded, thus ignoring its many shades, but the overall intensity of restriction is probably better captured than with a single binary index.[3] Finally, it estimates in parallel the impact of liberalization in developed and developing countries.

These distinctions are found to matter a great deal. For example Figure 1 displays the simulated effect of liberalization on the output gap, i.e. deviations of GDP from its long run trend (detailed explanations on the procedure are provided below). It shows that financial liberalization is considerably more destabilizing in developing countries

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[2] I implicitly assume that free open markets remain a desirable step at some point in the development process. This is a controversial view, see e.g. Rodrik (1997).

[3] Edwards (2000) too makes progress in this direction by using a four-step coding.

than in developed countries. Developing countries tend to go though a boom-bust cycle, especially in the case of an external liberalization.

Figure 1

The next section reviews the state of the debate, both the theory and accumulated evidence. Section 3 describes the paper's strategy and the data used in Section 4 where the effects of liberalization, domestic and external, are empirically tracked down. Exchange rate instability appears to follow financial liberalization. Surprisingly perhaps, the pressure is more in the direction of overvaluation than of undervaluation, reflecting an early surge in capital inflows. A lingering problem, in this paper as in the literature in general, is that policy may change in the wake, or as part of the liberalization process. If that is the case, the observed link between liberalization and currency turmoil may not be as unavoidable as the results suggest. Section 5 finds that fiscal discipline is systematically improved but that the surge in capital inflows seriously disturbs the conduct of monetary policy. The policy implications are developed in Section 6. It is argued that liberalization may be desirable from a long-run perspective --even though the benefits have not been found to be of the first order of magnitude-- but risky in the short to medium run. Consequently, careful and unhurried preparation is called for. The section also looks at the role of international financial institutions. The last section briefly concludes.

2. Financial Liberalization and Crises: a Brief Survey

2.1. Financial Restrictions and Financial Crises

An abundant and quickly growing literature explores the connection between financial liberalization and financial crises. Financial crises can be domestic --bank crashes-- or external --balance of payments crises-- or both --twin crises. Two questions are intertwined: whether financial restrictions, domestic and external, affect the probability of a crisis, or whether it is the removal of these restrictions which is a cause of crises. Drawing on the surveys by Dooley (1995) and Eichengreen *et al.* (1998) the following conclusions seem reasonably robust.

- Financial restrictions allow the authorities to insulate domestic interest rates. When there exist offshore markets, this effect is well documented by the emergence of an interest differential between the free off-shore and the controlled on-shore rates. The effect is also seen in unusually large domestic bid-ask spreads.
- While they generally fail to affect the volume of capital flows and their elasticity to interest rate movements, controls change the composition of flows, reducing the proportion of short-term capital.
- External controls are unable to thwart an attack on a pegged currency when the underlying policies are unsustainable. Yet, when a crisis gathers steam, external controls may provide the authorities with some breathing room to either organize a defense or realign their exchange rates. [4]

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[4] This last effect is well documented in the case of Brazil by Cardoso and Goldfajn (1998).

- Not all currency crises are due to bad fundamentals, i.e. macroeconomic policies which are inconsistent with an exchange rate target. A rising body of evidence suggests that crises can be self-fulfilling. Measures that slow down market reactions may make all the difference between a temporary turmoil and a currency meltdown.

These results concern the role of existing financial restrictions, but what about their removal, liberalization? The evidence seems to be converging to the view that liberalization contributes to both banking and currency crises. Looking at developed countries, Eichengreen, Rose and Wyplosz (1995) find that the presence of capital controls reduces the probability of a currency crisis, a result confirmed by Rossi (1999) for a sample that includes developing countries. Working with a sample of 53 developed and developing countries, Demirgüç-Kunt and Detragiache (1998b) find a strong effect on bank crises, even if the visible impact is delayed several years. Mehrez and Kaufmann (2000) find a lag of 3 to 5 years. Likewise, looking at 20 countries, Kaminsky and Reinhart (1999) conclude that currency and banking crises are "closely linked in the aftermath of financial liberalization".

What are the channels at work? Domestic financial liberalization opens up new possibilities for the banking and financial sectors, often resulting in more risk-taking. In the absence of adequate supervision and regulation, risk-taking may easily become excessive. When the external restrictions are lifted, open external positions often emerge and become very large as capital flows in, creating a situation of high vulnerability. The related literature on capital inflows shows that large inflows tend to be followed by sudden outflows with drastic impact on the exchange rate.[5]

2.2. Causality

The previous results link financial liberalization and financial crises, but another strand of literature has begun to explore the links between liberalization and policy. There is little doubt that macroeconomic policies which are inconsistent with an exchange rate target eventually result in currency crises, but it could well be that financial repression encourages policy misbehavior. This is to be expected if financial restrictions give the authorities the impression that they are shielded from financial instability, which becomes an incentive to adopt unsustainable policies. The evidence reported in Eichengreen and Mussa (1998) is compatible with this interpretation. Indeed, as confirmed recently by Aziz et al. (2000) and Kaminsky, Lizondo and Reinhart (1998), high inflation and fast credit growth are among the most reliable predictors of currency (and banking) crises.

However, the existing literature suffers from a serious lack of attention to the identification problem. The adoption of financial restrictions may well be part and parcel of an overall approach to policy making which goes well beyond macroeconomic policy. Financial liberalization may be just one of several measures taken by a reform-oriented government. In that case, liberalization can have radically

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[5] A good review of this literature is in Calvo, Leiderman and Reinhart (1996).

different effects depending on the accompanying measures. Recent work, surveyed by Dooley (1995) and subsequently extended by Demirgüç-Kunt and Detragiache (1998b), Edwards (2000), Mehrez and Kaufmann (2000) and Rossi (1999), shows that the adverse effects of financial liberalization occur mainly, if not only, in countries with poor institutions, characterized by the absence of proper bank regulation and supervision, widespread corruption, and more generally poor "law and order". This is an important observation as it suggests that liberalization does not necessarily raise the odds of a crisis; it could be that the danger comes from liberalization combined with other factors, that the effects of other policies which were previously obscured and mitigated by financial restrictions, suddenly come into the open.

3. Methodological Issues

In this paper I look only at currency crises, leaving aside banking crises. On the other hand, I look at both domestic financial restraints and various external controls. The focus is on the effects of liberalization, disregarding the level of remaining on-going restrictions. The questions raised are the following:

- Does financial liberalization create financial fragility? If so, is this effect sufficient to trigger full-blown currency crises and how long is the period of increased fragility?
- Among the many instruments used to restrain financial markets, which ones are the most delicate to lift?
- Do crises in emerging markets resemble those in mature economies and does financial liberalization produce the same effects in emerging markets and mature economies?

3.1. Measurement of Restrictions

Most recent empirical analyses of financial crises typically follow either of the two approaches developed by Eichengreen, Rose and Wyplosz (1995): event studies that track down the average behavior of the variables of interest around crisis time, pooling together a large number of events, possibly using non-parametric tests to identify systematic features; and econometric estimates of how various variables affect the probability of a crisis, using panel data over large samples of countries.

While much has been learnt from this approach, two limitations are noteworthy. First, financial restrictions are captured by dummy variables which take the value of zero in the absence of restrictions, and one if restrictions are in place. However, each generic restriction comes in many shapes, and many of them can be tuned to variable degrees of severity. This nuance is lost. Furthermore, liberalization can be a once-off event, or it can come in small installments spread over a long period of time. Several improvements have been proposed to deal with these problems. Montiel and Reinhart (1999) introduce a three-level coding allowing for an intermediate degree of restriction. Grilli and Milesi-Ferretti (1995) and Rossi (1999) look separately at several types of external constraints, each of which remains described by a (0, 1) dummy variable. Johnston (1999) considers 142 types of capital controls, aggregates them into 16 broad categories, each being coded in the usual (0, 1) fashion. The end

product is a single index, the equally-weighted average of the 16 categories. Thus the index is intended to capture the intensity of controls.[6]

To measure external restrictions, I adopt the approach of Grilli and Milesi-Ferretti (1995), using and updating to 1998 their dataset. This set carries two important advantages. First, the range of controls considered by Grilli and Milesi-Ferretti is wider than other published single (0, 1) indices. It includes four components: current account restrictions, capital account restrictions, export surrender requirements and multiple exchange rates.[7] Second, in contrast with Johnston's procedure which imposes equal weights to each category of control, the use of separate indices let the data choose their own weights.

As far as domestic financial restrictions are concerned, usable information is not available for a large number of countries. Demirgüç-Kunt and Detragiache (1998a) use information on domestic interest rate liberalization to produce an index which records the beginning of the process for 53 developing and developed countries. Mehrez and Kaufmann (2000) use a wider range of indicators, mostly drawn from Demirgüç-Kunt and Detragiache (1998a) and Williamson and Mahar (1998). While interest rate controls indeed constitute the crucial component of most domestic financial restrictions, many countries where interest rates are free still resort to various other important restrictions such as directed credit or lack of entry and competition in the banking sector. I use the information in all three papers to build my own index of domestic financial restriction. I allow for partial restrictions depending on the range of controls in place, so that the index takes intermediate values between 0 and 1. It is presented in Table 1.[8]

Table 1

3.2. Exchange Market Pressure

The studies reviewed above typically identify crises with a (0, 1) dummy variable, They then proceed to estimate the probability that a crisis occurs. While some authors use narrative reports to identify crises, most of them compute an index of exchange market pressure and determine a cut-off point (usually 1.5 or 2 standard deviations from the sample mean) to identify a crisis. The cut-off is necessarily arbitrary, even though the results are usually shown to be reasonably robust to changes in the chosen threshold.

The binary nature of the crisis index carries two serious drawbacks. First, crises rarely occur suddenly. More often, pressure builds up over months, if not years. This

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[6] Unfortunately, Johnston (1995) presents the index for one year only. Various IMF studies refer to other papers by the same team which may incorporate time series, but these papers are unpublished and apparently not made available to researchers.

[7] These are the standard categories used in the IMF's *Annual Report of Exchange Arrangements and Exchange Restrictions.*

[8] Given that the coding is heavily subjective, critical comments are most welcome.

information is lost, especially as it is customary to follow Eichengreen, Rose and Wyplosz (1995) in imposing exclusion windows which eliminate the two or three years that follow a crisis year. The depth and length of the crisis is thus lost. Second, the literature on capital flows reports that liberalization is often followed by substantial inflows which also exert pressure in the exchange market, but in the direction of an appreciation. In some cases, but not all, these inflows are followed after relative long lags by outflows, some of which culminate in a crisis. That information is precious and needs to be taken into account if we wish to draw a complete picture of the effects of liberalization.

For these reasons, I do not work with a crisis index but with the underlying foreign exchange market pressure index. This index is built by combining the change in the exchange rate and the loss of foreign exchange reserves, with weights inversely proportional to each variable's sample standard deviation:

$$\text{Exchange Market Pressure Index} = \frac{1}{s^E}\frac{\Delta E}{E} - \frac{1}{s^R}\left[\frac{\Delta R}{R} - \frac{\Delta R_i}{R_i}\right]$$

where E is the nominal exchange rate (vis a vis the US dollars for all countries, except European countries for which the exchange rate is defined vis a vis the Deutschmark) and R and R_i are the levels of foreign exchange reserves in the relevant country and the base country (the US or Germany), respectively, and s^E and s^R the sample standard deviations.[9] The higher is the index the more the exchange rate depreciates or the more reserves are being expended to protect the exchange rate, or a combination of both.[10]

The index is computed with monthly data from *IFS*. In order to capture the notion of mounting pressure --in one direction or the other-- the index is next cumulated over the previous twelve months. Figure 2 depicts the behavior of the cumulated index for the countries belonging to the sample used in the econometric applications of the next section (for which the index is converted to annual frequency by averaging the monthly series). It reveals indeed that pressure frequently rises for a while before suddenly climbing and then receding abruptly, presumably once the exchange rate target has been changed or abandoned. My main objective is to determine whether financial liberalization plays any role at all in this evolution.

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[9] The now-standard weighting scheme allows each component to play an equal role in measuring pressure. The reason for adopting this procedure is that reserves are typically considerably more volatile than the exchange rate and would dominate an unweighted index. This would downplay episodes when the authorities to not expend reserves and let the exchange rate depreciate by an amount that is large for the exchange rate but tame in relation to reserves volatility. Note also that I use country-specific standard deviations. An alternative is to use the whole sample, but this procedure results in hugely different pressure indices.

[10] Pressure may also materialize through interest rate increases to stem outflows. As is customary, the interest rate component is dropped since many developed countries do not have market interest rates during much of the sample period because of domestic financial repression.

Figure 2

3.3. Endogeneity

The standard procedure in the literature reviewed above is to look for a list of variables which predict crises and to check for the marginal significance of financial restriction indices. This procedure assumes that both the variables used as predictors and the controls are exogenous to crises. That assumption is unwarranted. For example, in the case of Brazil, Cardoso and Goldfajn (1998) find that the controls are endogenous to crises, i.e. that the authorities frequently resort to controls, or tighten existing ones, when exchange market pressure builds up, or even once the crisis has erupted. Similarly, several of the predictor variables may themselves react to the mounting pressure. This is likely to be the case of such popular variables as the ratio of money supply to foreign exchange reserves, inflation or credit growth. Some authors attempt to instrument these variables but Demirgüç-Kunt and Detragiache (1998b) report that the instruments are typically not efficient.

In the absence of appropriate instruments[11] I adopt two approaches. Firstly, I use the standard approach, omitting the most obviously endogenous variables and using only lagged regressors to explain the exchange market pressure index. Secondly, as a test of robustness of the previous results, I estimate an autoregressive model of the exchange market pressure index with lags of the financial restriction variables.

3.4. Data

The choice of the sample is dictated by data availability. The list of countries is determined by the domestic financial restriction variable, see Section 3.1. The list includes 8 developed countries (Australia, Austria, Belgium, France, Italy, Japan, new Zealand and the U.K.) and 19 developing, mostly emerging market countries (Argentina, Brazil, Chile, Colombia, Ecuador, Egypt, India, Israel, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, South Africa, Sri Lanka, Thailand, Turkey and Venezuela). The periodicity is annual[12] and the sample period 1977-99 is also dictated by data availability. Except for the financial restrictions variables described above, all data are drawn from the *IFS* CD-ROM.

4. Exchange Market Pressure and Liberalization

An important aspect of the present inquiry concerns the relative timing of liberalization and subsequent currency turmoil. As a consequence particular attention is paid to allow for lags, possibly long lags. Since this approach requires large samples and neither the number of available country observations nor the length of the sample allows for pure cross-country or pure time-series estimations, I resort to panel

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[11] I have experimented with various instrument variables. The results change very little, suggesting that the instruments are not powerful enough.

[12] The monthly cumulative index pressure index is converted to annual series by averaging.

data estimation. I allow for fixed effects (not reported) and use a GLS estimator to take into account the possibility of cross-section heteroskedasticity. In addition the coefficients for developing countries are allowed to differ from those for developed countries by interacting a developing country dummy with all right hand-side variables. Due to missing observations, the panel is not balanced.

Dynamic panel data estimation with lagged dependent variables is known to be inconsistent (Nickell (1981)). In reviewing the various procedures proposed to deal with the problem, Kiviet (1995) notes that the bias is likely to be small if the true autoregressive term is small. Although the bias is negative, so that the results underestimate the true coefficient, I have found low autoregression and limited the investigation to least squares procedures. Other approaches are on the research agenda.

4.1. Structural Estimates

The literature on leading indicators of crisis has produced a list of variables that seem to consistently do well in explaining past currency and/or banking crises in both developing and developed countries. The list includes inflation, credit growth, real GDP growth, exchange rate overvaluation, foreign direct investment, the terms of trade and measures of financial markets depth or fragility such as the ratio M2/foreign exchange reserves or exposure to foreign liabilities. The first strategy is to estimate a "structural model" of exchange rate pressure, using the above potential explanatory variables. I add some variables that theory suggests could be there (the current account and budget balances) but have rarely been found relevant. On the other side, I exclude some obviously endogenous variables (those that include foreign exchange reserves since this is used to build up the pressure index, the terms of trade index which tends to move closely with the exchange rate) even though they have been reported to enter significantly. The list and definition of variables is given in Appendix 1.

The procedure was to start with four lags of all variables, including the regressand, then to eliminate all variables significant at less than 20%, and then all variables significant at less than 10%. In a second stage, the five variable measuring restrictions (domestic financial restrictions, current account restrictions, capital account restrictions, export surrender requirements and multiple exchange rates) were introduced, each with four lags each, and the same elimination procedure was repeated for these variables, keeping those which are significant at the 10% confidence level.

Table 2 presents the results, displaying in the first column the estimates without the financial restriction variables, and in the second column the estimates obtained using the financial restriction variables which are displayed in the third column. Most of the coefficients remain virtually unchanged when the financial restriction variables are added, although the precision declines in some cases (mainly for the overvaluation

and banks' external position variables) suggesting the possibility that these variables respond endogenously to the presence of financial restrictions.[13]

The most clearly significant measures of financial restrictions are those related to domestic financial and current account restrictions, especially capital controls, with little evidence regarding export surrender and multiple exchange rates. However, a positive coefficient means that the relevant variable increases market pressure, suggesting that restrictions are counter-productive in terms of shielding the balance of payments. Such "perverse" coefficients are found for each restriction index at some but not all lags, which suggests a complicate time profile of effects.

The hypothesis that the coefficients are the same for developing and developed countries is strongly rejected. This suggests that financial restrictions may operate differently when countries differ. This result is not surprising in light of previous studies which report the importance of institutions and political characteristics (see Section 2). Given the complex dynamic interactions suggested by the pattern of signs, the effects of liberalization are better studied with the help of simulations, which is done in Section 4.3 below.

Table 2

4.2. Autoregressive Estimation

As a check on the previous results, this section presents "non-structural" estimates, omitting the standard variables displayed in Columns 1 and 2 of Table 2. The exchange market pressure index is regressed on its own lags and on the lags of the five restriction indices. In order to allow for the slow effects often reported in the literature, the regression allows for six yearly lags. Developing country-specific effects have been tested and retained when significant at the 5% confidence level. The estimation results are presented in Table 3.

As in the structural regression, a positive sign indicates that the restriction weakens the currency and, with the exception of exports surrender, each of the restrictions under study significantly displays such an effect at least at some lag. The results also confirm the previous finding that developing countries react differently to restrictions, again with the exception of exports surrender requirements. Finally, the time-pattern of responses varies greatly in a complex way which is best analyzed via simulations.

Table 3

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[13] As is often the case in the literature, the budget variable does not seem to affect exchange market pressure. There is no role either here for credit growth or for credit to the private sector, two variables found to affect banking crises.

4.3. The Impact of Liberalization: A Simulation Analysis

This section investigates the effects of liberalization on the index of exchange market pressure using the two estimated models presented in Sections 4.1 and 4.2. In each case the model is simulated with all five restrictions in place and then with one restriction relaxed at a time from period 0 onwards. Figure 3 displays the differences between these two simulations using the "structural model" estimates of Table 2, Figure 4 uses the "autoregressive model" estimates shown in Table 3. Each chart can be interpreted as showing the effect of lifting the restriction under consideration. A positive number indicates that the liberalization move increases exchange market pressure. In each case the chart displays the simulated impact in both the developing (with the dummy variable LDC set at 1) and the developed countries (the dummy is set at 0). [14]

Four main observations emerge:

First, the predictions from the two models are broadly similar, but not identical. These differences serve as a healthy reminder that our knowledge of the effects of financial restrictions is rather rudimentary. That conclusion ought to be kept in mind as we draw policy implications.

Second, the simulated effects rarely exceed the exchange market pressure's sample standard deviation which stands at about 6. Thus it cannot be asserted that liberalization *per se* causes currency crises. Still, it can be a contributing factor.

Third, it takes many years for the effects to stabilize. Liberalization measures typically work themselves out over about 5-6 years. often swiftly oscillating between reducing and increasing exchange market pressure. Liberalization appears as a long-lasting source of exchange market instability.

Fourth, the effects of liberalization differ markedly between developing and developed countries, both in the short and in the long run. In the long run, liberalization tends to strengthen developing country currencies. In the short run, the effect is markedly stronger and more variable in the developing countries.

The more detailed analysis that follows is based on Figure 4:

Domestic financial liberalization. Exchange market pressure lessens immediately, and further decline for several years. All along, the broad pattern is similar in both sets of countries but the beneficial effect is stronger in developing countries. This result presumably corresponds to the capital inflows frequently observed in the aftermath of liberalization as described e.g. in Calvo, Leiderman and Reinhart (1996) or Hausmann and Rojas-Suarez (1996).

Current account liberalization. In the developing countries, following short-lived inflows, current account liberalization results in heightened exchange market pressure

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[14] In the case of the autoregressive model, Figure 4 presents a 3 month centered average.

which does not vanish in the long run. The effect is small, however and not confirmed in Figure 3, suggesting little impact.

Capital account liberalization. For the developing countries, the simulation suggests sizeable capital inflows over the first five years following capital liberalization, a pattern confirmed in Figure 2 and in line with direct observation. This is followed by a sharp reversal which lasts for another five years. Possible reasons for this reversal are investigated below in Section 5. The pattern for developed countries is similar but much weaker, with no clear reversal.

Other external account liberalization steps. The lifting of measures that compel exporters to turn their foreign currency receipts to the authorities within a specified period and, occasionally at a specific, non-market exchange rate, triggers capital inflows which are reversed within four years, with apparent little difference between developing and developed countries. The lifting of a related restriction, multiple exchange rates that typically separate out current and financial account transactions, is found not to affect much exchange market pressure.

Figures 3 and 4

4.4. Conclusions

The evidence comforts several views which are often seen as contradictory.

First, the restrictions whose lifting produce sizeable exchange market pressure effects are those that affect the domestic financial markets and the capital account. The other liberalization moves appear as quite innocuous.

Second, for the two main restrictions, the long-run effect of liberalization on exchange markets is positive (less pressure or a tendency to appreciate). The long-run effects are negligible for the other restrictions. The standard "textbook" presumption that liberalization helps in the long run is borne out by the present results.

Third, the effects of liberalization are systematically more sizeable in developing countries than in developed countries. This could reflects the fact that, in developing countries, the restrictions were more severe to start with. This interpretation cannot be tested given that I use a binary index. The "bang per buck" effect might be constant, again in line with standard "textbook" analysis.

Fourth, the short-run effect on exchange market pressure is also favorable, but a reversal tends to occur after a few years. This result nicely matches the observation of capital inflow surges following comprehensive liberalization, as well as the tendency toward a subsequent reversal. This is in line with our understanding of the dangers of sizeable inflows.

Fifth and focusing on the all-important capital account liberalization, while the exchange market pressure effects remain favorable in comparison with the pre-

liberalization period, the delayed reversal is sizeable. It is not powerful enough to trigger a crisis on its own, but the magnitude is such that it can make all the difference between moderate pressure and a full-blown crisis. This comforts both those who claim that capital controls are not enough to thwart a looming crisis and those who claim that the controls can be a useful additional instrument.

5. Liberalization and Macroeconomic Policies

How to interpret the different effects of liberalization in developing and developed countries? It could be related to the depth of pre-existing restrictions, but also to post-liberalization macroeconomic policies. In line with most of the existing literature, lacking valid instruments, I have not dealt with the possible endogeneity of the variables used to explain exchange market pressure, in particular those that represent macroeconomic policies. This section tackles the issue somewhat differently: it asks whether policy systematically changes in the wake of financial liberalization.

A good starting point is the widespread evidence –indirectly confirmed above—of sizeable capital flows in the aftermath of financial markets liberalization. The policy response to large capital inflows is fraught with dangers, as shown by Calvo, Leiderman and Reinhart (1996). Inaction leads to rapid money growth, overheating and inflation. Sterilization works for a while but it is an unsustainable response given rapidly growing quasi-fiscal costs. Allowing the exchange rate to appreciate may result in overvaluation and a deepening current account deficit which undermines confidence in the currency and eventually leads to lethal reversals. Since the reversals are found to be deeper in developing than in developed countries, a plausible interpretation is that policy relaxation is more pronounced in the former group of countries.

To investigate this possibility, I look at three policy variables: 1) the deviation of the real exchange rate from its trend, a measure of misalignment; 2) credit growth, a measure of monetary policy in the presence of capital flows; 3) the budget surplus. Each of these three variables is regressed on its own lags and on lags of the five restriction indicators. As before I use a dummy variable to allow for different coefficients for developing and developed countries. To avoid data-mining, six lags are allowed and no weeding out of statistically insignificant regressors is attempted. The results --not reported here-- indicate that the restriction indicators matter at least at some lags, and that there exist significant differences between the developing and developed countries. These results are used to simulate the behavior of the three policy indicators following liberalization. The results for domestic and current account liberalization are displayed in Figure 5.

Does policy reaction explain the observed aftermath of liberalization? Starting with domestic financial liberalization in developing countries, the exchange rate initially appreciates moderately (being overvalued by about 5%) and then depreciates deeply (reaching an overvaluation of some 20%). This result may seem to be at odds with the turnaround in exchange market pressure depicted in Figure 3. A possible reconciliation runs as follows. Following domestic financial liberalization, interest

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rates --which typically were administered and kept low—rise. This rise keeps in check a pick-up in credit growth, which is indeed found to remain moderate (peaking at 1.5%). Along with a restrictive fiscal policy stance --the budget balance increases by about 2% of GDP -- this leads to an economic slowdown and exerts a moderating influence on inflation. The evidence provided in Section 6.2 bears that interpretation out.

Looking next at capital account liberalization in the developing countries, the combination of a huge real appreciation and buoyant credit growth for several years bears all the signs of destabilizing capital inflows. The traditional recipe, a reinforcement of budgetary discipline, is found to be applied but it fails to check the overheating, which may explain the subsequent increase in exchange market pressure noted in Figure 2.

Figure 5

The evidence on policy is both reassuring and disquieting. There is no indication that, on average, developing countries relax policy discipline in the wake of domestic or capital account liberalization. Yet, the inflows that follow external liberalization prove hard to cope with. All three margins --partly-sterilized interventions, exchange rate appreciation and fiscal tightening-- are being used but only seem to delay and limit the reversal in exchange market pressure that sets in a few years down the road.

6. Policy Implications

6.1. What Have We Learned?

Views on the role and effect of financial restriction differ sharply. Proponents of restrictions point to destabilizing speculation. Opponents find restrictions self-defeating and ultimately counter-effective. Interestingly the results presented here suggest that these two views need not be mutually exclusive. What are the implications?

First, if financial restrictions shield the foreign exchange markets from speculative pressure, what are the risks of liberalization? The view that restrictions cannot prevent the collapse of an exchange rate target when the underlying macroeconomic policies are unsustainable is borne out by the present results. But these results also vindicate those who claim that liberalization opens up a window of fragility that can last several years. In and by themselves, the exchange market effects of liberalization are too small to generate a crisis, but the see-saw effect on exchange market pressure can easily wrong-foot the authorities --and their advisors from international financial organizations-- tipping the odds in favor of a currency crises. This is primarily the case with capital account liberalization which emerges as the most sensitive step.

Second, proponents of liberalization argue that post-liberalization crises are the consequence of misguided policies and practices. Recent research has indeed documented the deleterious effect of poor financial regulation and supervision, of

corruption, poor property rights and opaqueness in business dealings at a time when liberalization brings to the fore the role of markets. This may explain the generally stronger impact of liberalization on currency pressure in developing countries. Similarly, there is evidence that the capital inflow problem is less severe and better handled in developed countries where, in particular, credit growth is better held in check. Opponents of hasty liberalization will retort that fiscal discipline rises after liberalization, and more so in the developing than in the developed countries. Rather than bad policies or bad institutions, it could be that developed countries face a harsher liberalization shock because of initial conditions: capital may simply flow more vigorously into where it is scant and where external private indebtedness is low. At this stage, we simply do not know what is the proper interpretation.

Third, liberalization is found to reduce foreign exchange pressure in the long run, but is initially a source of instability, which can last for several years,. The effect is of a first order of magnitude in the case of domestic and capital account liberalization, and stronger in developing than in developed countries. Thus, from the view point of exchange rate stability, it pays to liberalize, eventually.

Fourth, it remains surprising how little we explain of crises. The estimates presented in Table 2, well within the performance achieved in the literature, barely explains some 40% of exchange market pressure fluctuations. Importantly, the usual indicators of policy or banking sector misbehavior are rarely found to be significant. The inescapable conclusion is that much of the action lies elsewhere, and we don't know where. To date, the best hypothesis is that crises often are of a self-fulfilling nature in the sense of Obstfeld (1986). Self-fulfilling crises do not affect fully innocent victims, but it is only fair to acknowledge that we are far from having developed an exhaustive list of sins. Most countries are potentially guilty of something; when they liberalize their financial markets they are potentially about to face a currency crisis, but no one knows for sure of what is the guilt.[15] One does need to go as far as Flood and Rose (1998) who claim that "when it comes to understanding exchange rate volatility, macroeconomics --'fundamentals'-- are unnecessary", but another important lesson remains to be fully taken on board: unexplained self-fulfilling crises are likely to reflect failures of financial markets.[16] Financial restrictions may not be the second best response to market failures, but measures that limit the collateral damage created when those failures should not be ruled out.

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[15] It is amazing how recent crises have contributed to extending the list of sins: starting with high unemployment in Europe's 1992 crisis, the list has moved on to including foreign currency-denominated public debt after Mexico's crisis in 1994, foreign currency-denominated private sector debt as well as crony capitalism after the Asian crisis of 1997, and local government fiscal indiscipline after Brazil's crisis. The 1997-98 attacks of the Hong Kong dollar or the Argentinean peso have been attributed to contagion, which points towards lenders' sins.

[16] A list of plausible market failures is presented in Eichengreen, Tobin and Wyplosz (1995). Research is currently active to explore this list.

6.2. Is Liberalization Worth It?

The previous section argues that, in and by itself, liberalization does not pose a lethal threat to the balance of payments, and may carry significant long-term gains. But this is not the only criterion to consider. The welfare case for liberalization still needs to be established. Does liberalization speed up growth by increasing investment? Does it allow consumers to borrow and save as needed to smooth out spending? First principles deliver an unambiguous, positive answer to both questions, but they are based on too many assumptions that violate the evidence (e.g. they assume away financial market failures) to be taken at face value.

Empirically, the ability of financial markets to diversify risk and stabilize consumption in the face of shocks is supported by the results quoted in the survey by Eichengreen and Mussa (1998). While this is a useful property, it is likely to be of second order of magnitude. The acid test remains the ability of liberalization to spur faster growth. Early, influential results have shown that fast growth and financial development go hand in hand (Levine 1997). The positive influence of liberalization, however, is not easily confirmed and most recent studies find little or no effect. One possible reason, emphasized by Rodrik (1998), is simultaneity: it is simply unclear whether countries become rich thanks to liberalization or whether rich countries liberalize their financial markets because they can afford to. At this stage, the growth-enhancing case for liberalization is simply not made. If it is present, it is too tenuous to be easily detected; at best therefore, it is a second-order effect.

If liberalization is not doing much good, it is not found to do any harm either, at least in the long run. In that sense, it should be considered as a desirable step unless it can be shown to carry shorter-run adverse effects. The relevant question, therefore, is whether the road to free markets is bumpy enough to deter the trip. In this section, rather than focusing on long-term growth, I ask the following question: given that liberalization is often followed by a crisis, and that crises typically lead to sharp recessions, is it worth it? Are there short or medium-run output costs of liberalization and, if so, how deep are they? To that effect, I look at the evolution of the output gap, deliberately ignoring the trend effect.

To provide a rough answer, I use the same panel dataset as above and regress the output gap[17] on its own lags and on lags of the financial restriction indicators. As before, six lags are used and, the coefficients are allowed to differ for developed and developing countries. The resulting model --not reported-- is then simulated to measure the effects of removing one by one the financial restraints. Figure 1 above shows the effects simulated over the subsequent 10 periods of a domestic or capital account liberalization that occurs in period 0.[18]

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[17] The output gap is computed as the difference between the log of the real GDP and a Hodrick-Prescott trend.

[18] As we look at the output gap, long-run effects are meaningless.

In both cases, the immediate aftermath of liberalization is characterized by a boom, especially strong in the developing countries (nearly 15% of GDP following capital account liberalization) in the case of a liberalization of the capital account. The boom is followed by a sharp contraction. This pattern again likely reflects the capital inflow problem, including the eventual reversal. It also backs the interpretation of policy actions proposed in Section 5. More importantly for the present purposes, the overall impact, e.g. the output gap cumulated over 10 years, is positive in the case of the developing countries (moderately negative in the case of the developed countries), no matter how violent is the fall in periods 3-6. While the details of the simulations must be taken with precaution, the general profile is probably reasonably robust[19] and leads to the following conclusions.

First, liberalization is a source of macroeconomic instability, much as it increases exchange rate pressure volatility. A boom-bust cycle is clearly detected for the developing countries. In the case of capital account liberalization, the peak-to-trough decline in the output gap exceeds 20%. No other shock ever seems responsible for such a massive contraction.[20]

Second, the boom exceeds the bust in magnitude, not in length. Thus liberalization brings about an overall gain in terms of output and, if one ignores the instability, there is no income case against liberalization.

Third, however, the bust can be of considerable amplitude and therefore it can be a serious setback, economically, socially, and politically. Once the bust is taken into account, there is an income case against liberalization.

Fourth, the contrast between the effects in the developing and those in the developed countries is sharp. Further investigation is needed to pinpoint which specific factors account for the difference.

6.3. Safe Liberalization

Given what we know so far, a reasonable view might be that liberalization brings about desirable, albeit second order of magnitude long-run effects but it is dangerous in the medium run. The next natural question is how to reap the benefits without incurring the costs, or with minimal costs. This section explores some solutions.

Wait. Most countries will eventually liberalize, but this need to be done as a matter of priority. When is the time ripe? A first answer is provided by the ubiquitous contrast between the effects of liberalization in the developing and the developed countries. It

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[19] The same profile is found when using the annual growth rate instead of the output gap. However, and unsurprisingly given the results in the literature, the estimated effects of liberalization on the growth rate are found to be very small even if they are based on statistically significant estimated effects.

[20] The most traumatic recession of the developed world, the Great Depression the 1930s, was also the outcome of a financial market collapse. Its effects may have been aggravated by mistaken policies unlikely to be undertaken nowadays, it still remains the case that the triggering factor was financial instability.

suggests that, if one wants to avoid, at least to limit boom-and-bust cycles and high exchange pressure volatility, it may be useful to wait until a proper economic, and, possibly political infrastructure has been built. This may take years, if not decades.[21] The implicit strategy advocated in the early 1990s, that economic liberalization will force economic and political progress, is dangerous: its success remains to be demonstrated and it is a tad too machiavellian to be comfortable with.

Buckle up. The experience from both developing and developed countries[22] suggests that liberalization is a source of widespread instability. Two conclusions follow. First it is important to set up adequate welfare systems before liberalizing. Free markets may raise efficiency, but they are known to increase inequality, at least initially. Boom-and-bust cycles affect more seriously the poorer, less educated segments of the population. In addition, the boom years must be used to prepare for the bust years. Fiscal policy, in particular, ought to be used to build up public savings which will be available to combat financial meltdowns and protect those most hurt by the bust, if it happens.

Float or dollarize? Well, not necessarily. Is there a way out of the hard choice between waiting for decades and getting ready for acute volatility? One idea, defended among other by Eichengreen (1994) is to avoid the middle ground of pegged exchange rates, and opt for either of the two extremes, fully floating exchange rates and hard pegs (currency boards, monetary unions or dollarization). Lack of data so far prevent us from studying the effect of liberalization under a hard peg. Some progress could be achieved by comparing liberalizing countries which adopted floating exchange rate regimes and those that maintained, or sought to maintain, soft pegs. Unfortunately, identifying truly floating exchange rates is proving to be a tricky exercise. Calvo and Reinhart (2000) and Benassy-Quéré and Coeuré (2000) show that many countries which declare a flowing exchange rate regimes in fact heavily manage their currencies.

While it is true that currency crises cannot formally occur when the exchange rate is freely floating, pressure can take the form of excessive exchange rate fluctuations. Such fluctuations may have very severe effects, in terms of both competitiveness and currency exposure by various economic agents. The view that floating is an option for each and every country fails to recognize the benefits from exchange rate stability, especially in countries which are open and have limited financial market services. Europe's eagerness to limit exchange rate fluctuation, delaying for 40 years financial liberalization, provides an example of a successful strategy.[23] Hard pegs, on the other side, are in vogue, but their costs (e.g. in Argentina) and the difficulty of designing credible exit strategies are being increasingly recognized. It seems fair to predict that the debate on 'extremes vs. the soft middle' will end up in a draw, much as it happened

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[21] This is the conclusion reached in Wyplosz (2001) where I look at the European experience with financial liberalization.

[22] It is useful to keep in mind the travails that followed financial liberalization in the UK and the Nordic countries of Europe in the early 1990s.

[23] This strategy, and its meaning for developing countries, is presented in Wyplosz (2000).

with the older debate on 'fixed vs. flexible rates'. Because exchange rate regimes carry enormously widespread implications, a few simple criteria are unlikely ever to settle the debate.

On the other side, it is crucial to realize *ex ante* that liberalization rocks the exchange markets. Building some form of exchange rate flexibility (either by floating or by being ready to realign pegs) into the liberalization program is essential. An appreciation (or revaluation) during the early capital inflow phase, clearly understood and presented to be temporary, could reduce the overheating reported in Figures 1 and 4. A depreciation (or devaluation) when and if the inflows reverse themselves into outflows and/or the economy slows down, could avoid an all-out attack and the subsequent output crash.

One step at a time. The seminal sequencing strategy advocated by McKinnon (1991) is to start with domestic goods market liberalization, then to open up to trade, and then to proceed to domestic financial liberalization before finally setting free the capital account, possibly starting with long-term assets and keeping short-term assets for the last step. This strategy has not been proven wrong so far.[24] The results presented in Figure 4 indicate that the most delicate steps are those involving domestic financial and capital account liberalization. Since they also tend to work in the same direction at the same horizon, spreading these measures several years apart seems reasonable.

Microeconomics matter. A serious shortcoming of the present paper is its ignorance of structural conditions. The evidence that crises are more likely when goods markets are not free, when banking regulation and supervision is rudimentary, when corruption is rampant, and when property rights are not well established, is overwhelming. This is the first order of business in McKinnon's list, and it should remain that way. There is little point in liberalizing domestic and external financial markets when the goods markets and the financial institutions do not function properly. Extreme examples like Russia even suggest that financial liberalization under such conditions is likely to do more harm than good.

6.4. The Role of International Financial Institutions

Actions by the international financial institutions, chiefly the IMF, during the currency crises of the late 1990s have been critically reviewed by a large number of observers, e.g. in Goldstein (1998), Radelet and Sachs (1998) and De Gregorio et al. (1999), not to mention the Meltzer Report (2000). The Fund's early policy recommendations have been blamed for worsening the crisis. Part of the criticism is based on the view, initially developed by Edwards (1989), that the IMF applies a methodology developed, with developed countries in mind, in the 1950s when capital account movements were heavily restricted. The result that developing countries react differently to financial liberalization provides some support to the critique.

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[24] The only exception is the transition process in the former Soviet block where "shock therapy" seems to have worked better. This process is too specific to be included in the present discussion.

More importantly, perhaps, is the distinct possibility that future balance-of-payments crises will be circumscribed to developing countries. If that were the case, the IMF would become an institution run by the developed countries --which hold an overwhelming majority of the votes-- but at the service of the developing countries. This was not the intention of the founding fathers and it raises complex economic and political issues which have surfaced following the crises in Mexico, Asia, Russia and Brazil. The IMF has now tamed its early enthusiasm towards rapid liberalization but it has failed to recognize early enough the associated dangers. It has been seen as protecting the lenders (financial institutions from the developed countries) at least as much as the borrowers. It has sought to impose intrusive structural reforms that the developed countries have been long to apply to themselves (Feldstein, 1998).

The debate on the "New Architecture of the International Monetary System" is concerned with the need for change. The outcome will affect the process of liberalization and the way the IMF deals with countries at times of crisis. The developing world has a huge stake in this debate, and yet its voice is rarely heard. Eventually, developing countries should be more in charge of *their* Fund.

7. Conclusion

The 1990s have been years of activism. The developed countries and most international financial organizations have been urging the developed countries to undertake rapid and comprehensive domestic and external financial liberalization. The crises that followed have now instilled a healthy dose of caution. It is being increasingly recognized that financial markets suffer from occasional failures. Promoting proper governance, economic and political, makes good sense in theory but it is easy to underestimate the difficulty of challenging entrenched interests and of reshaping the political status quo. A silver lining of the recent crises is that the liberalization activism of the 1990s is now *passé*.

At the same time, liberalization may be desirable, if only because it increases competition and reduces monopoly powers, not just in the financial markets. But liberalization is a risky step, one on which our knowledge remains rudimentary. This concerns the exchange markets but also many other aspects, including welfare and growth performance. Many countries, in Europe but also in Asia, have been able to grow fast over decades while retaining heavy-handed financial restraints. This alone shows that there is no urgency to undertake liberalization, even though that step should be clearly be taken somewhere down the road. And when it is being taken, it should be approached as a delicate step calling for cautious policy reactions.

Appendix 1. Data: definitions and sources

All data are collected from the *IFS* CD-ROM of April 2000.

Inflation: increase in the CPI, line 64x

Real GDP growth: line 99br or similar, occasionally completed by chaining the index of industrial production, line 66

Exchange rate misalignment: log deviation of the real exchange rate from a log-linear trend, where the real exchange rate is computed by double deflating the nominal rate (line ae) with the CPI (line 64) vis a vis the US, or Germany for the European countries.

Liquidity: the ratio of bank reserves (line 20) over bank assets (line 21 + lines 22a to 22f)

Total credit: the ratio of nominal credit (line 32) to nominal GDP (line 99b or similar)

Private credit growth: increase in real credit, the ratio of claims on the private sector (line 32d) to CPI (line 64)

Foreign position of banks: the ratio of bank foreign liabilities (line 26c) to their liquid assets (line 21)

Foreign direct investment: the ratio of direct investment (line 78bed) converted in local currency (line rf) to GDP (line 99b or similar)

Foreign exchange reserves: foreign assets of the monetary authorities (line 11)

Current account: the ratio of the current account (line 78ald) converted in local currency (line rf) to GDP (line 99b or similar)

Budget surplus: the ratio of budget position (line 80) to GDP (line 99b or similar)

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Table 1. Index of Domestic Financial Restraint

	Argentina	Australia	Austria	Belgium	Brazil	Chile	Columbia	Ecuador	Egypt	France	India	Indonesia	Israel	Italy	Japan	Korea	Malaysia	Mexico	New Zealand	Peru	Philippines	South Afric	Sri Lanaka	Thailand	Turkey	UK	Venezuela
1973	1.00	1.00	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	0.67	1.00
1974	1.00	1.00	0.50	1.00	1.00	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	0.67	1.00
1975	1.00	1.00	0.50	1.00	1.00	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	0.67	1.00
1976	1.00	1.00	0.50	1.00	0.67	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00
1977	0.00	1.00	0.50	0.67	0.67	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00
1978	0.00	1.00	0.50	0.67	0.67	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	0.50	1.00	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00
1979	0.00	1.00	0.50	0.67	1.00	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	1.00	0.50	1.00	0.67	1.00	1.00	1.00	0.33	1.00	1.00	0.33	1.00
1980	0.00	1.00	0.00	0.67	1.00	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	1.00	0.50	1.00	0.67	1.00	1.00	0.33	0.33	0.67	0.33	0.33	1.00
1981	0.00	1.00	0.00	0.67	1.00	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	1.00	0.50	1.00	1.00	1.00	1.00	0.33	0.33	0.67	0.33	0.33	1.00
1982	0.67	0.67	0.00	0.67	1.00	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	1.00	0.50	1.00	1.00	1.00	0.33	0.33	0.33	0.67	0.33	0.33	1.00
1983	0.67	0.67	0.00	0.67	1.00	0.67	0.67	1.00	1.00	1.00	1.00	0.33	1.00	0.33	0.67	1.00	0.50	1.00	1.00	1.00	0.33	0.33	0.33	0.67	0.33	0.33	1.00
1984	0.67	0.67	0.00	0.67	1.00	0.67	0.67	1.00	1.00	0.00	1.00	0.33	1.00	0.33	0.67	1.00	0.50	1.00	0.33	1.00	0.33	0.33	0.33	0.67	0.33	0.33	1.00
1985	0.67	0.33	0.00	0.67	1.00	0.67	0.67	1.00	1.00	0.00	1.00	0.33	1.00	0.33	0.67	1.00	0.50	1.00	0.00	1.00	0.33	0.33	0.33	0.67	0.33	0.33	1.00
1986	0.67	0.33	0.00	0.67	1.00	0.67	0.67	0.50	1.00	0.00	1.00	0.33	1.00	0.67	0.67	0.67	0.50	1.00	0.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	1.00
1987	0.33	0.00	0.00	0.67	1.00	0.67	0.67	0.50	1.00	0.00	1.00	0.33	1.00	0.67	0.67	0.67	0.50	1.00	0.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	1.00
1988	0.33	0.00	0.00	0.33	1.00	0.67	0.67	0.50	1.00	0.00	1.00	0.00	1.00	0.33	0.67	0.67	0.50	1.00	0.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	1.00
1989	0.33	0.00	0.00	0.33	0.67	0.33	0.67	0.50	1.00	0.00	1.00	0.00	1.00	0.33	0.67	0.67	0.50	0.67	0.00	1.00	0.33	0.33	0.33	0.33	0.00	0.33	1.00
1990	0.33	0.00	0.00	0.33	0.67	0.33	0.33	0.50	1.00	0.00	1.00	0.00	0.33	0.33	0.67	0.67	0.50	0.67	0.00	1.00	0.33	0.00	0.33	0.33	0.00	0.33	1.00
1991	0.33	0.00	0.00	0.33	0.33	0.00	0.33	0.50	0.33	0.00	1.00	0.00	0.33	0.33	0.33	0.67	0.00	0.00	0.00	0.67	0.33	0.00	0.33	0.33	0.00	0.33	0.33
1992	0.33	0.00	0.00	0.33	0.33	0.00	0.33	0.33	0.00	0.00	1.00	0.00	0.33	0.00	0.33	0.67	0.00	0.00	0.00	0.33	0.33	0.00	0.33	0.00	0.00	0.33	0.33
1993	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.33	0.00	0.00	0.50	0.00	0.33	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.33	0.33
1994	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.33	0.00	0.00	0.33	0.00	0.33	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.67
1995	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.67
1996	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.33
1997	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.33
1998	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.33
1999	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.33

Sources: Demigürç-Kunt and Detriagache (1998a), Mehrez and Kaufmann (), Wyplosz (2000)

Table 2. Structural estimation

Dependent Variable: Exchange market pressure
Method: GLS (Cross Section Weights)

Variable (lag)	Coef. (t-Stat.)	Coef. (t-Stat.)	Variable (lag)	Coef. (t-Stat.)
Exchange market pressure(-1)	0.162 **	0.152 **	Domestic restrictions(-2)	4.717 **
	3.959	3.389		4.013
Exchange market pressure(-2)	-0.200 **	-0.228 **	Domestic restrictions(-3)	-7.837 **
	-4.746	-4.594		-5.610
Inflation(-1)	-0.334 **	-0.432 **	Domestic restrictions(-4)	2.936 *
	-2.937	-4.479		2.007
Inflation(-2)	0.435 **	0.503 **	LDC*Domestic restrictions(-2)	-2.458
	3.856	4.640		-1.058
LDC*Inflation(-1)	0.335 **	0.433 **	LDC*Domestic restrictions(-3)	8.139 **
	2.939	4.484		2.909
LDC*Inflation(-2)	-0.438 **	-0.505 **	LDC*Domestic restrictions(-4)	-2.307
	-3.893	-4.668		-0.949
Exchange rate misalignment(-1)	5.377 **	3.513 *	Current account restrictions(-1)	-2.034
	4.265	2.111		-1.374
Exchange rate misalignment(-2)	-7.046 **	-5.253 **	Current account restrictions(-4)	4.155 **
	-5.825	-3.419		4.296
GDP Growth(-3)	-87.467 **	-88.413 **	LDC*Current account restrictions(-1)	3.063 *
	-6.364	-6.032		1.946
Foreign direct investment(-4)	0.001 **	0.000 *	LDC*Current account restrictions(-4)	-2.951 *
	2.574	2.408		-2.391
LDC*Foreign direct investment(-1)	-0.004 *	-0.004 *	Capital account restrictions(-1)	1.061
	-2.201	-2.052		1.344
LDC*Foreign direct investment(-4)	-0.001		Capital account restrictions(-2)	-2.933 **
	-1.824			-3.165
External position(-2)	0.426 **	0.301 *	Capital account restrictions(-3)	1.024
	4.181	2.466		1.217
External position(-4)	-0.441 **	-0.314 **	LDC*Capital account restrictions(-1)	-1.081
	-4.218	-2.848		-0.906
LDC*External position(-4)	0.696 **	0.618 **	LDC*Capital account restrictions(-2)	8.678 **
	3.337	3.004		4.410
Current account(-1)	-47.649 **	-50.398 **	LDC*Capital account restrictions(-3)	-2.570
	-8.627	-8.692		-1.365
Current account(-3)	31.047 **	32.155 **	Export surrender(-3)	4.432 **
	3.401	3.831		3.252
LDC*Current account(-3)	-36.314 **	-44.955 **	Export surrender(-4)	-2.495
	-3.200	-4.214		-1.791
			LDC*Export surrender(-3)	-5.055 **
				-3.334
			LDC*Export surrender(-4)	2.530
				1.563
			Multiple exchange rates(-1)	2.870
				1.708
N. observations	462	429	Multiple exchange rates(-2)	-3.067 *
Sample	1975-99	1977-99		-2.407
			Multiple exchange rates(-4)	-2.000
				-1.790
			LDC*Multiple exchange rates(-1)	-3.786
				-1.087
Weighted Statistics				
Adjusted R-squared	0.486	0.455	LDC*Multiple exchange rates(-2)	3.407
S.E. of regression	4.412	4.359		1.025
F-statistic	23.283	10.102	LDC*Multiple exchange rates(-4)	2.355
Durbin-Watson stat	1.989	1.972		1.312

Sources: See Appendix 1 for sources and definitions.
Note: White Heteroskedasticity-Consistent Standard Errors & Covariance
** (*): significant at the 1% (5%) confidence level.

Table 3. Autoregression estimates

Dependent Variable: Index of exchange market pressure
Method: GLS (Cross Section Weights)

Variable (lag)	Coef.	(t-Stat.)	Variable (lag)	Coef.	(t-Stat.)
Exchange market pressure(-1)	0.258 **		Capital account restrictions(-1)	-0.280	
	4.822			-0.435	
Exchange market pressure(-2)	-0.443 **		Capital account restrictions(-2)	-0.624	
	-6.757			-0.715	
Exchange market pressure(-3)	-0.025		Capital account restrictions(-3)	0.149	
	-0.538			0.127	
Exchange market pressure(-4)	-0.187 **		Capital account restrictions(-4)	0.272	
	-4.727			0.230	
Exchange market pressure(-5)	0.037		Capital account restrictions(-5)	-2.734 **	
	1.039			-2.689	
Exchange market pressure(-6)	-0.080 *		Capital account restrictions(-6)	3.888 **	
	-2.510			4.473	
LDC*Exchange market pressure(-2)	0.402 **		LDC*Capital account restrictions(-2)	4.448 **	
	4.931			2.851	
Domestic restrictions(-1)	2.770 *		LDC*Capital account restrictions(-5)	5.546 *	
	2.489			2.537	
Domestic restrictions(-2)	0.470		LDC*Capital account restrictions(-6)	-6.437 **	
	0.339			-2.903	
Domestic restrictions(-3)	-0.919		Export surrender(-1)	-0.464	
	-0.689			-0.711	
Domestic restrictions(-4)	-0.251		Export surrender(-2)	1.087	
	-0.183			1.392	
Domestic restrictions(-5)	-0.507		Export surrender(-3)	0.652	
	-0.378			0.681	
Domestic restrictions(-6)	2.548 *		Export surrender(-4)	-0.013	
	2.360			-0.014	
Current account restrictions(-1)	-1.414		Export surrender(-5)	1.330	
	-1.407			1.101	
Current account restrictions(-2)	-1.185		Export surrender(-6)	-3.055 *	
	-1.580			-2.505	
Current account restrictions(-3)	-1.172		Multiple exchange rates(-1)	4.505 **	
	-1.630			3.141	
Current account restrictions(-4)	1.877 **		Multiple exchange rates(-2)	-2.517 *	
	2.680			-1.945	
Current account restrictions(-5)	1.842		Multiple exchange rates(-3)	-1.408	
	1.671			-1.234	
Current account restrictions(-6)	0.610		Multiple exchange rates(-4)	-1.389	
	0.845			-1.263	
LDC*Current account restrictions(-1)	2.822 *		Multiple exchange rates(-5)	1.555	
	2.144			1.732	
LDC*Current account restrictions(-5)	-4.293 **		Multiple exchange rates(-6)	-0.993	
	-3.922			-1.622	
			LDC*Multiple exchange rates(-1)	-4.044 *	
				-2.188	
Weighted Statistics			LDC*Multiple exchange rates(-3)	4.026 **	
				3.326	
Adjusted R-squared	0.358				
S.E. of regression	4.913				
F-statistic	8.927		N. observations	563	
Durbin-Watson stat	2.006		Sample	1979-99	

Note: White Heteroskedasticity-Consistent Standard Errors & Covariance
** (*): significant at the 1% (5%) confidence level.
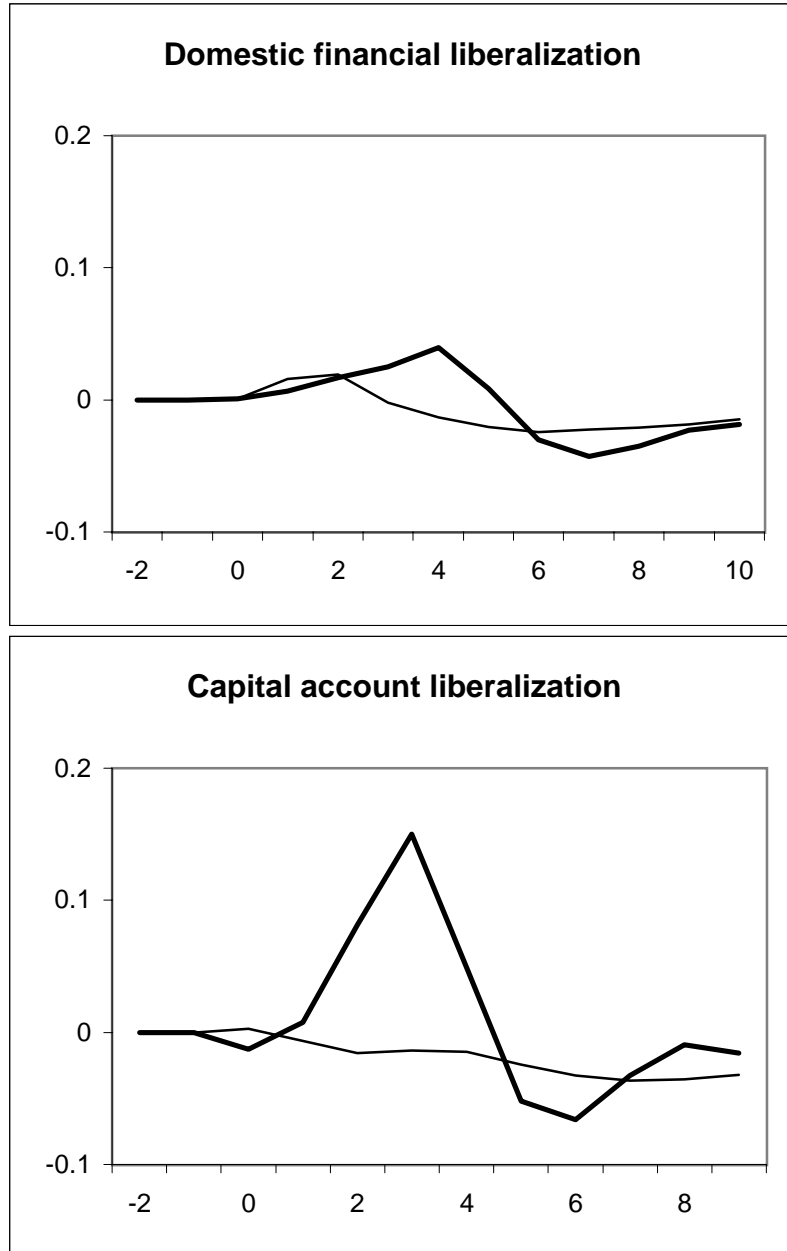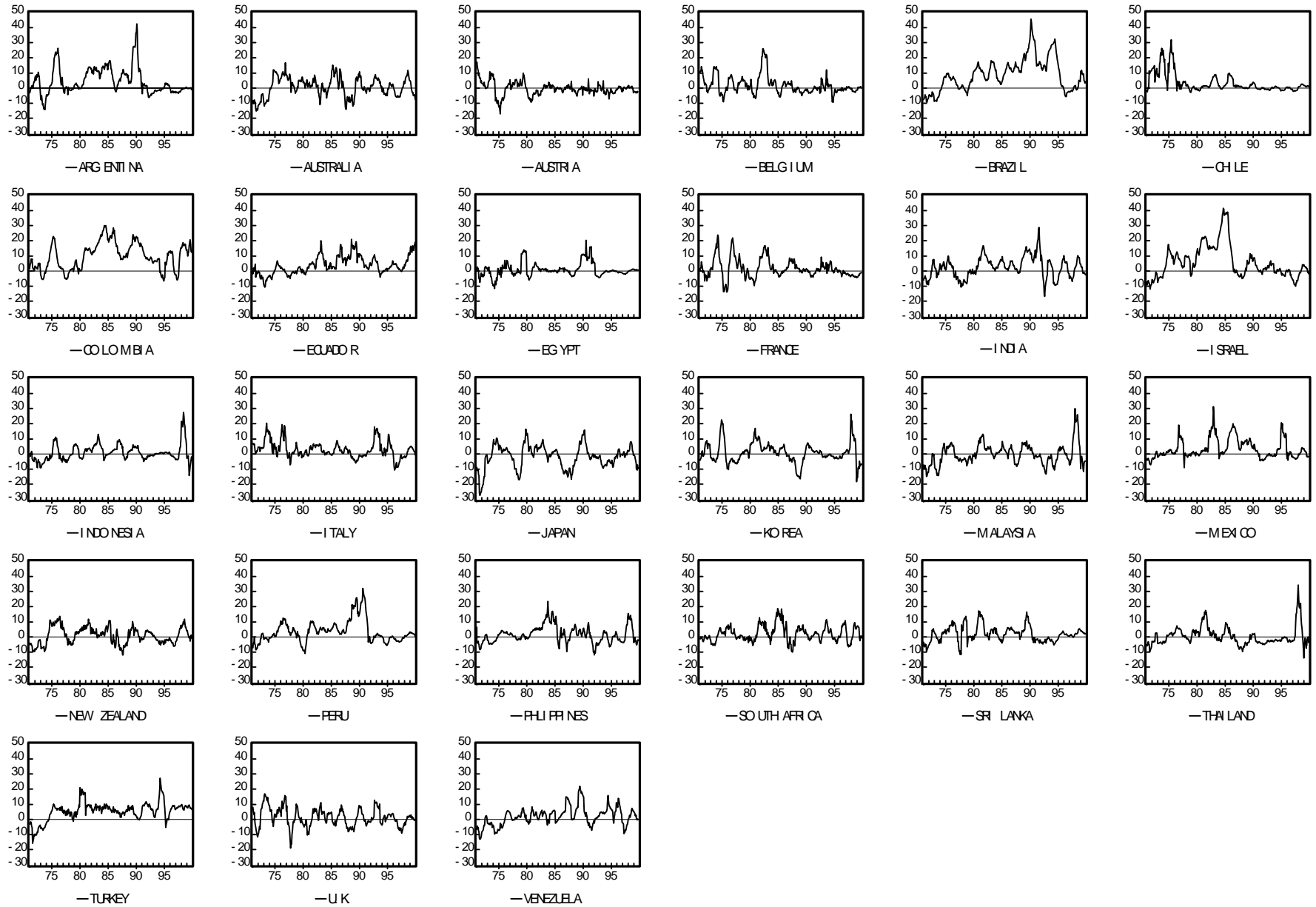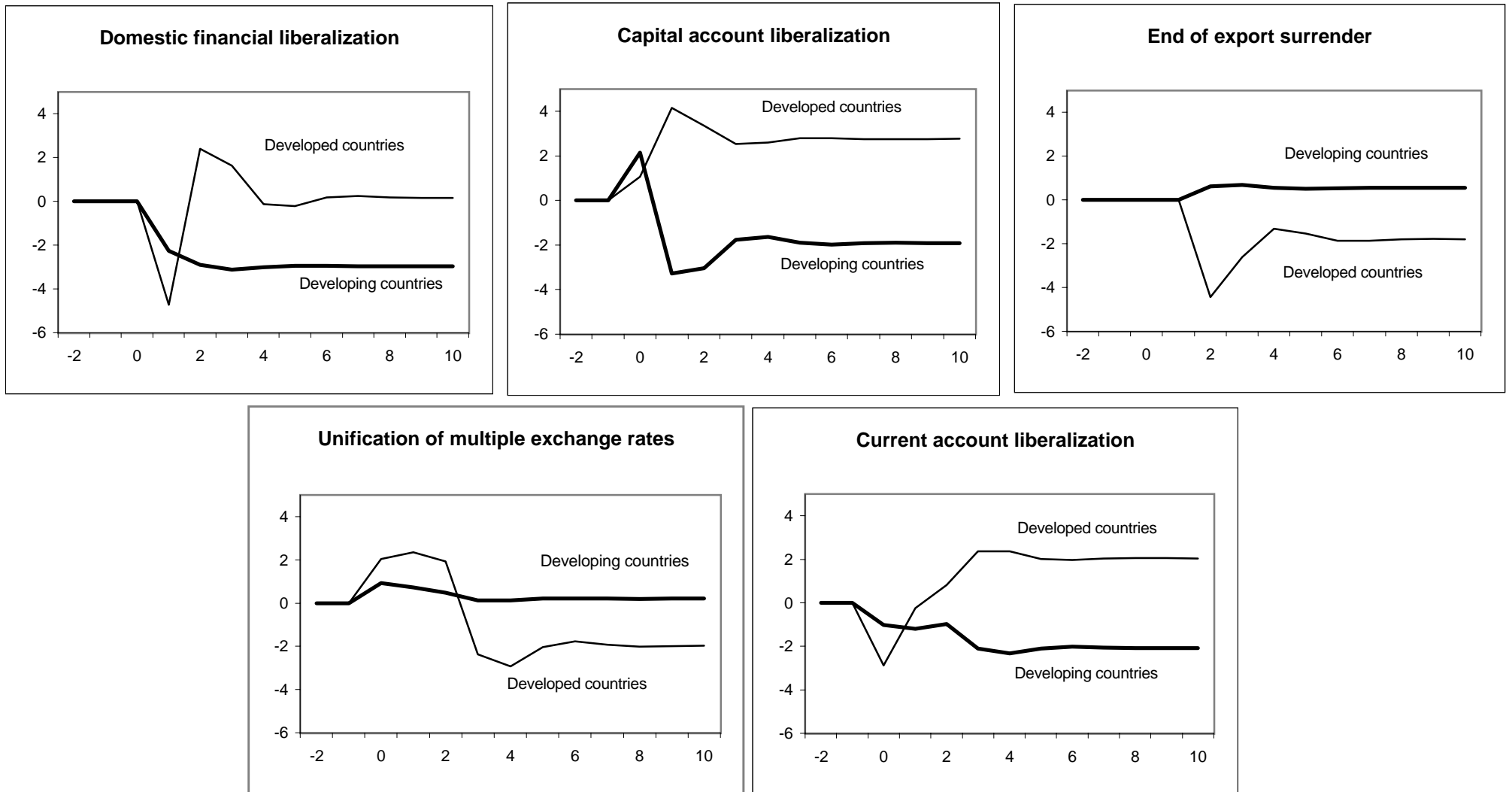
Figure 1. GDP gaps following liberalization

Domestic financial liberalization

Capital account liberalization

Figure 2. Index of Foreign Exchange Market Pressure

Figure 3. Siumulated effects of liberalization on the exchange market pressure index
Structural model

Figure 4. Simulated effects of liberalization on the exchange market pressure index
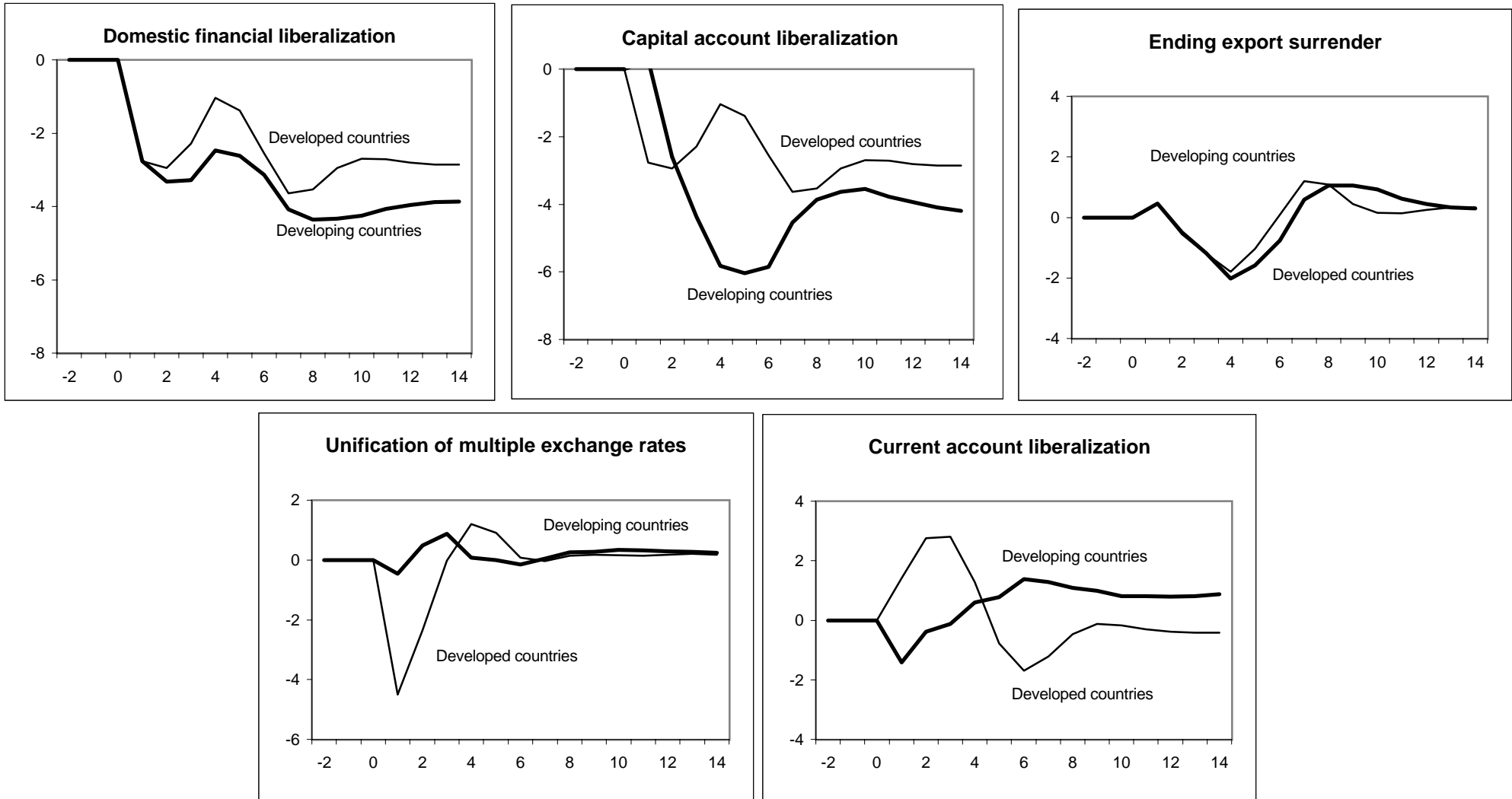**Autoregressive model**

Figure 5. Capital account liberalization and macroeconomic policies

Domestic financial liberalization

Exchange rate misalignment

Credit growth

Budget surplus

Capital account liberalization

Exchange rate misalignment

Credit growth

Budget balance