

MPRA

Munich Personal RePEc Archive

The Art of Gracefully Exiting a Peg

Asici, Ahmet and Wyplosz, Charles

2003

Online at <https://mpra.ub.uni-muenchen.de/4432/>

MPRA Paper No. 4432, posted 11 Aug 2007 UTC

The Art of Gracefully Exiting a Peg

AHMET ASICI

Graduate Institute of International Studies

CHARLES WYPLOSZ

Graduate Institute of International Studies and CEPR

I INTRODUCTION

The wave of liberalisation of capital movements, which swept Europe in the 1980s and the emerging market countries in the 1990s, has given rise to the two-corner strategy. This strategy, expounded e.g. by Eichengreen (1994) and Fischer (2001), holds that only two exchange rate regimes are sustainable: hard pegs (currency boards, dollarisation) and fully flexible rates. Soft pegs in the middle, the traditional fixed but adjustable exchange rate regimes as well as all varieties of crawling bands, are seen as doomed, open to irresistible and unpredictable speculative attacks. While the predominance of the two corners remains open to the observation that most countries fear both extremes (see e.g. Levy-Yeyati and Sturzenegger, 2002), it remains true that an increasing number of countries have exited the soft middle ground, mostly towards the flexible end of the spectrum.

Exits from pegged regimes have not been altogether happy, however. As described by Eichengreen and Masson (1998), most countries hesitate to leave a pegged regime while it is working well and only consider the exit option when they are facing speculative pressure, and then it often is too late. The IMF has encouraged many countries to exercise the option in good times, but fear of floating and fear of pegging have often prevented this advice from being heeded.

This paper was delivered by Professor Charles Wyplosz as the Edgeworth Lecture at the Seventeenth Annual Conference of the Irish Economic Association, Limerick, April, 2003.

Despite its increasing policy importance, there is precious little work on the art of exiting a peg. On the theory side, Rebelo and Végh (2002) ask when it is optimal to do so. They explore optimal monetary policy in a traditional Krugman first-generation model of currency crisis, assuming exit costs and considering the occurrence of fiscal shocks. They find that it is often optimal to abandon the peg as soon as the shock occurs.

Empirically, a number of studies have examined exchange rate crises, sometimes accompanied by banking crises, see e.g. Eichengreen *et al.* (1995), Kaminsky and Reinhart (1999). Yet, work up to now has focused precisely on the question of exits from pegs. This is the issue that the present paper aims to explore. It considers the whole history of exits from pegs to exchange rate flexibility since 1975, identifies which exits were “peaceful”, and searches for the conditions under which such peaceful exits are achieved.

A key issue is whether these characteristics are structural or macroeconomic. As noted above, Eichengreen and Masson (1998) find that peaceful exits are those which are not undertaken under macroeconomic pressure. Another view, emphasised in the recent literature on third-generation crises in emerging market countries (see, e.g. Chang and Velasco, 1999), is that de-pegging must be preceded by the build-up of adequate financial markets and institutions.

One problem that has long plagued the literature on exchange rate regimes is that it is not always clear what the regime actually is. For a variety of reasons, *de jure* regimes often differ from *de facto* regimes. The authorities may want to guarantee a fixed rate but find it difficult or impossible, and yet attempt to retain the fiction that they do so. This is fear of floating, as described by Calvo and Reinhart (2002). Conversely, the authorities may wish to avoid leaving their exchange rate open to speculative attacks, so they do not announce any peg. Yet, they do not want to allow for too much exchange rate volatility and in effect intervene heavily. This is fear of pegging.

So far, we had to rely on the *de jure* classification reported by authorities to the IMF, a classification which has progressively allowed for an increasing number of regimes. The official classification is clearly unsatisfactory and creates the risk of misinterpreting what the authorities actually do. Fortunately, two recent papers, Reinhart and Rogoff (2002) and Levy-Yeyati and Sturzenegger (2002), have offered *de facto* classifications, based on demonstrated behaviour. In particular, Reinhart and Rogoff (2002) use actual (market-determined) exchange rates, rather than the officially published ones, to explore the behaviour of the monetary authorities and derive the *de facto* regime. We use the Reinhart and Rogoff (R&R) classification and associated database to identify actual exits and study the behaviour of the market-determined exchange rate around these episodes.

The next section presents the approach and the data used in this study. It examines whether macroeconomic, financial market structure and political indicators behave in a different way during the year preceding the exit. Section III presents a formal statistical treatment which generally confirms the visual impression emerging from Section II. The last section draws a number of policy implications.

II METHODOLOGY AND DATA

2.1. Exits

Reinhart and Rogoff (R&R) classify the *de facto* exchange rate regimes into 14 groups, including one special case called “freely falling” which corresponds to an annual inflation rate of 40 per cent. They use an algorithm to derive this classification for 153 countries, relying on market-determined exchange rates, which often differ from the official rates reported to the IMF. Their resulting classification is indicated in order of increasing flexibility in Table 1. We adopt this classification and define an exit as a shift from categories 1 to 11 to categories 12 to 14, with a three year window, including at least two years in the pegged regime (1 to 11) followed by at least one year in the new flexible regime (12 to 14).

Table 1: *Exchange Rate Regimes*

<i>Category</i>	<i>Characteristics</i>
1	No separate legal tender
2	Pre announced peg or currency board arrangement
3	Pre announced horizontal band that is narrower than or equal to ± 2 per cent
4	<i>De facto</i> peg
5	Pre announced crawling peg
6	Pre announced crawling band that is narrower than or equal to ± 2 per cent
7	<i>De factor</i> crawling peg
8	<i>De facto</i> crawling band that is narrower than or equal to ± 2 per cent
9	Pre announced crawling band that is wider than or equal to ± 2 per cent
10	<i>De facto</i> crawling band that is narrower than or equal to ± 5 per cent
11	Moving band that is narrower than or equal to ± 2 per cent
12	Managed floating
13	Freely floating
14	Freely falling

Source: Reinhart and Rogoff (2002).

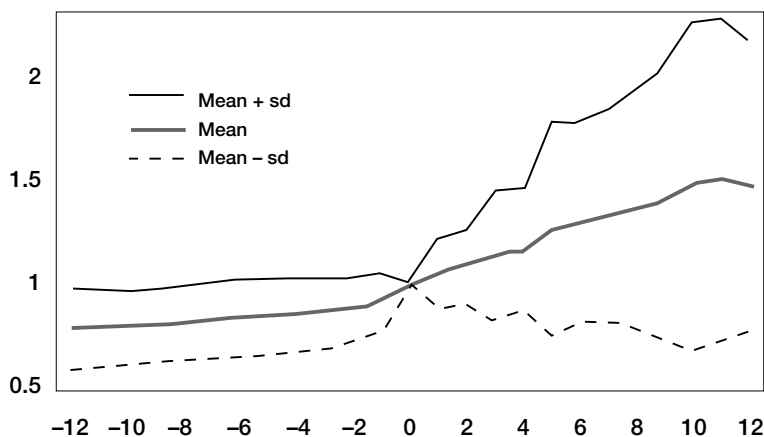
This choice is arbitrary, as is any classification. For instance, in their coarser classification, R&R lump together categories 10 to 12, a case of limited flexibility. Our reasoning is that in categories 1 to 11, the monetary authorities are committed (*de jure* or *de facto*) to intervene or adjust their policy to uphold a peg or a band, whereas they may or may not, at their discretion, do so when they belong to the three remaining categories. An exit is defined here as the *de facto* abandonment of any systematic commitment to maintain the exchange rate within any band, wide or narrow, fixed or crawling.¹

2.2. Peaceful and Troubled Exits

We next define a peaceful exit as one which is characterised by a depreciation of the market-determined exchange rate over the period comprised between six months before and six after depegging that does not exceed 25 per cent. It may be surprising to use the evolution of the exchange rate over the period before the actual exit. However, market-determined exchange rates may well start depreciating in advance, in effect forcing the exit. Ignoring this effect could lead us to mislabel as peaceful many exits delayed for too long.

Indeed, in a number of cases, the post-exit depreciation is small, or even negative (which occurs in 9 instances out of the 55 cases considered here).² The unweighted average pattern, one year before and one year after the exit month is presented in Figure 1. We also present some robustness tests, allowing for

Figure 1: Average Exchange Rate Around Exit Time
(Average of 55 countries; index: exit = 1)



¹ In subsequent work, we intend to explore variations in the definition of what constitutes an exit.

² The R&R data set of market-determined exchange rates ends in 1998. For the period 1999-2001 we use the official rates available from *International Financial Statistics*.

two alternative limits (depreciations less than 15 per cent and 40 per cent). Our sample period covers the period 1975-2001. The start date is chosen to eliminate the post-1973 period of widespread adjustments that followed the decision to abandon the Bretton Woods system. The end date is guided by data availability.

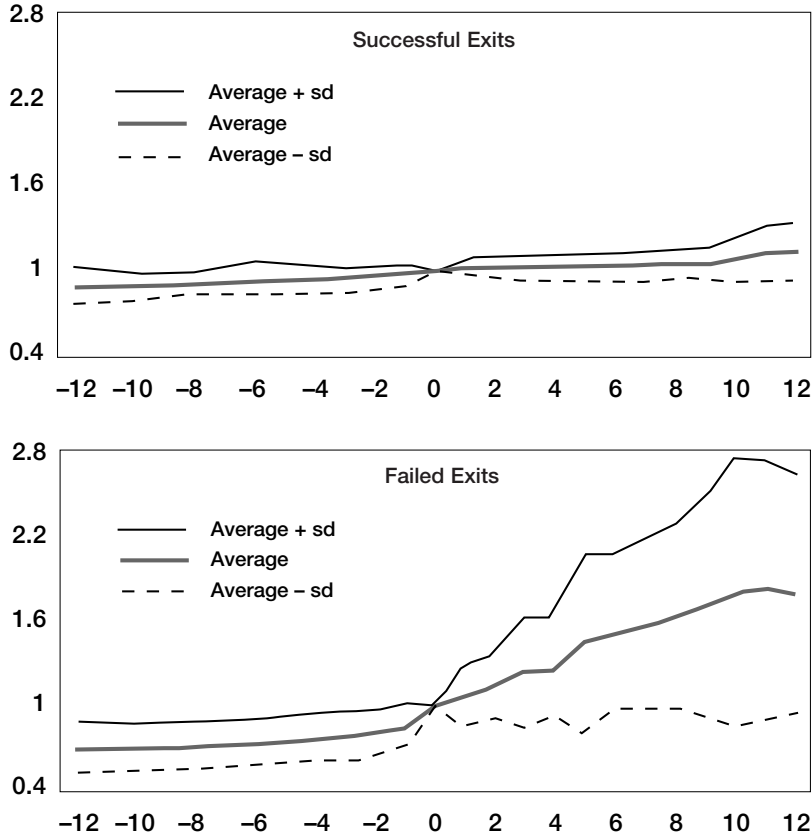
Table 2 presents the 55 exit cases that match our definition of exit and are analysed in this study, indicating the month when the shift occurred according to the R&R classification. The peaceful exits are coded 1. Our criterion nicely separates out the sample into 27 peaceful exits and 28 troubled ones. The behaviour of exchange rates around exits times is depicted in the two panels of Figure 2, distinguishing between peaceful and troubled exits.

Table 2: *Exit Dates*

Country	Year	Month	Peaceful	Country	Year	Month	Peaceful
Algeria	1988	January	1	South Korea	1997	December	0
Argentina	1981	March	0	Lebanon	1984	March	0
Australia	1982	November	1	Madagascar	1985	July	1
Brazil	1977	July	1	Malawi	1997	August	0
Brazil	1999	February	0	Mexico	1982	February	0
Burundi	1996	May	1	Mexico	1994	December	0
Czech Rep.	1997	May	0	Malaysia	1997	August	0
Chile	1982	June	0	Moldovia	1998	June	0
Chile	1999	September	1	Myanmar	1983	May	1
China	1981	March	1	New Zealand	1985	March	1
Colombia	1983	October	0	Nicaragua	1979	April	0
Colombia	1999	September	1	Norway	1982	July	1
Costa Rica	1980	September	0	Norway	1992	December	1
Dominican Rep.	1982	August	1	Paraguay	1981	September	1
Dominican Rep.	1987	November	0	Philippines	1983	October	0
Ecuador	1982	March	0	Philippines	1997	July	0
Ecuador	1999	February	0	Poland	2000	April	1
El Salvador	1982	August	1	Singapore	1998	December	1
Greece	1981	July	1	Slovak Rep.	1998	October	1
Guatemala	1985	March	0	Suriname	1982	May	1
Guinea	2000	May	1	Sweden	1992	November	1
Haiti	1993	May	0	Thailand	1997	July	0
Iceland	2000	October	1	Turkey	2001	February	0
Iceland	1997	May	1	UK	1992	September	1
Indonesia	1997	August	0	Uruguay	1982	November	0
Iran	1977	January	1	Venezuela	1983	February	0
Japan	1977	December	1	Zimbabwe	1983	July	0
Kenya	1987	January	0				

Source: Based on Reinhart and Rogoff (2002).

Figure 2: *Average Exchange Rate Around Exit Time*
 (Average of 55 countries; index: exit = 1) *Failed vs. Successful Exits*



2.3. Potentially Explanatory Macroeconomic Variables

The next step is to assemble a dataset of potential explanatory macroeconomic variables. Here we follow the theoretical and empirical literature on currency crises to select the variables of interest. As we need comparable variables, data availability is seriously constraining, of course. Unless otherwise specified, all data come from the World Bank's *World Development Indicators* CD-ROM, 2002.

The variables of interest include measures of the cyclical position during the year preceding the exit and monetary and fiscal policies. The output gap is computed by applying the HP filter to the real GDP over the period 1973-2001. For monetary policy we use the average inflation rate over the previous 12 months, the evolution of gross international foreign assets of the central

bank, and the pre-exit month nominal interest rates (both the level and its change), all from the IMF's *International Financial Statistics*, December 2002 CD-ROM. For fiscal policy, we use the budget balance on the year preceding the exit's year.³ Other variables usually considered include the current account balance as a proportion to GDP, the public and external debts, foreign direct investment, each observed on the year before exit.

Table 3: *Macroeconomic Variables Before Exit*

		<i>Peaceful</i>	<i>Troubled</i>
Output gap (% of trend)	average	-3.5	-6.5
	s.d.	6.4	12.0
Inflation rate (% p.a.)	average	9.5	14.6
	s.d.	9.0	16.6
Change (%) in gross international reserves	average	-4.5	-43.0
	s.d.	46.2	49.7
Interest rate, on month before exit	average	8.3	27.0
	s.d.	7.7	34.2
Budget balance (% of GDP)	average	-1.4	-2.9
	s.d.	4.2	3.7
Current account (% of GDP)	average	-3.1	-6.9
	s.d.	5.2	7.0
Public debt, total (% of GDP)	average	30.7	26.9
	s.d.	27.7	18.5
Public debt, short term (% of GDP)	average	4.4	10.2
	s.d.	3.4	7.2
External debt (% of GDP)	average	31.1	46.6
	s.d.	32.7	19.0
Foreign direct investment (% of GDP)	average	2.1	1.4
	s.d.	3.2	1.4

Sources: *World Development Indicators* and *International Financial Statistics* (see text for details).

Table 3 shows the unweighted averages and standard deviations of these variables for the peaceful and troubled exit cases (some observations are missing). While the differences are rarely statistically significant,⁴ a number

³ Because budget figures typically are only available and in fact meaningful on an annual basis, we cannot tailor them precisely to the month of exit. This may be problematic, as noted below.

of observations can be drawn. Peaceful exiters display a less depressed economy (as measured by the output gap) as well as a lower inflation rate and therefore a lower interest rate as well, lower current account deficits, but not markedly better budget balances or public debts. Their public debts are longer-term and external indebtedness is smaller. Interestingly, the loss in gross international reserves over the preceding 12 months is one-tenth lower, suggesting that timing might be an important strategic issue.

2.4. *Potentially Explanatory Financial Market Structure Variables*

In an influential series of studies (Demirguc-Kunt and Levine, 2001), the World Bank has argued that the developing countries that allow their financial markets to develop achieve faster growth and, importantly, more resilience to financial crises. As part of the effort, they have developed and made available a database that provides a number of indicators of financial development and structure.⁵ Based on this work, we have selected the four indicators listed and defined in Table 4. In general, the peaceful exiters are characterised by more financial development, but the differences are slim and not statistically significant.

Table 4: *Financial Structure Indicators Before Exit*

		<i>Peaceful</i>	<i>Troubled</i>
Financial depth:	Average	51.0	49.4
Liquid liabilities (% GDP)	s.d.	31.9	51.2
Central Bank Assets (% GDP)	Average	7.6	6.7
	s.d.	9.8	6.9
Deposit Money Bank Assets (% GDP)	Average	47.8	42.0
	s.d.	32.1	41.5
Private Credit (% GDP)	Average	57.4	45.7
	s.d.	42.5	40.5

Source: Beck *et al.* (1999).

2.5. *Potentially Explanatory Institutional Variables*

The importance of institutions in shaping macroeconomic policies and outcomes is increasingly recognised.⁶ The literature suggests looking at a wide array of political and institutional variables. Eichengreen *et al.* (1995) report

⁴ Asici (2002) presents a battery of non-parametric tests.

⁵ Beck *et al.* (1999) available at <http://www.worldbank.org>.

⁶ See, e.g. Persson and Tabellini (2000).

some evidence that elections, and the way they go, may affect the occurrence and ultimate impact of currency crises. For the countries under consideration, such data is not available and, in fact, many countries are not even working democracies with regular and fair elections. For these countries, a number of studies have looked at political fractionalisation, but such data do not apply to the developed countries. For lack of a better alternative, we just use two indices: the Freedom House index of political freedom and the index of corruption perception proposed by Transparency International. The first index does not discriminate between the peaceful and troubled exiters but the corruption index powerfully does. Unfortunately, many observations are missing for the corruption index which limits its reliability.

Table 5: *Political Indices on the Year Before Exit*

		<i>Peaceful</i>	<i>Troubled</i>
Political freedom	average	3.6	4.0
	s.d.	2.5	2.0
Perceived corruption	average	7.0	3.6
	s.d.	2.3	1.4

Notes: The political freedom index ranges from 1 (perfectly free) to 7 (no freedom).

Source: Freedom House.

The index of corruption perception ranges from 1 (highest corruption) to 10 (no corruption).

Source: Transparency International.

III MAIN RESULTS

In this section we formally ask whether the probability of a peaceful exit is statistically associated with the variables examined in Section II. To that effect, we perform probit estimations on the (0, 1) exit indicator shown in Table 2. Although we have 55 episodes in our sample, due to missing observations for the right-hand side variables, the number of degrees of freedom quickly declines as we add more variables and the probit procedure fails. As a consequence, we have to severely limit the number of right hand side variables. The regression results displayed in Table 6 are chosen to combine as large a number of estimates as possible with apparently robust coefficients. The results generally confirm the impression provided by the previous tables.

3.1. *Macroeconomic Factors*

Quite clearly, the chances of a peaceful exit hangs on a timely move. Taking the step when the economy is above its trend growth path, when

inflation is low, when reserves have been growing and before the market-determined exchange rate is falling, greatly enhances the odds of a peaceful exit. The coefficients in Table 6 cannot be interpreted as the marginal effects of changes in the right-hand side variables; these effects, estimated at the sample mean, are shown in Table 7. They are generally sizeable and confirm the importance of macroeconomic factors.

The dog that is barking in the dark here is the public budget. It is never found to have a significant direct effect and this is also the case of the public debt. This result is surprising in view of the extensive literature that emphasises the lack of public finance discipline as a source of currency crises. The result here is that the role of fiscal discipline is not crucial for peacefully exiting a pegged regime, arguably a different question. In fact, this result is consistent with the model of Rebelo and Végh (2002) which finds that it is optimal to promptly exit a peg when there is a fiscal policy shock.

The role of the current account is less clear cut. It does not enter significantly in Regression (2), although the sign is as expected. It enters indirectly through the external debt, which is consistently found to reduce the odds of a peaceful exit. This is quite reasonable: one year of bad numbers do not have a very meaningful effect, what matters is the accumulation of deficits.

The results also show that losing foreign exchange reserves before the exit hurt, although the effect is not very powerful as shown in Table 7. The sample average of losses over the previous twelve months is 20 per cent so, on average, waiting to exit in the front of exchange market pressure reduces by 4 percentage points the odds of doing so peacefully. Put differently, this can be seen as evidence that many exits are forced, taken in the midst of speculative attacks. Such forced exits, with declining reserves and a depreciating market-determined exchange rate, are rarely peaceful.

The role of the interest rate is more difficult to capture because of a large number of missing data, even including where need be the non-market determined discount rate. Preliminary results (not reported) suggest that a high interest rate reduces the probability of a peaceful exit, even when the inflation rate is kept on the right-hand side. This result, if confirmed, would strengthen the previous observation that exits undertaken under market pressure, whether it is resisted through foreign exchange market intervention or an interest rate defence, are rarely peaceful.

Two more results appear in Table 6. First, Regression (5) shows that the worldwide incidence of exits during the same year negatively affects the chance of success. The incidence variable is the proportion of all exits under review that appear in the same year. It is strongly suggestive of contagion effects. Indeed, many exits are forced by a speculative attack. Second, the

literature on the push and pull aspects of currency crises (Hausmann and Rojas-Suarez, 1996) suggests that conditions significantly worsen when the US interest rate increases as it tends to pull in capital from other countries. This is confirmed by Regression (4).

3.2. The Role of Financial Market Structure

The financial market structure indicators are generally found not to play a significant role, as already suggested by Table 4. Of the variables under consideration, only the financial depth variable systematically enters significantly, but with a negative sign. The mainstream view is that deep and effective financial markets make an economy more resilient to adverse shocks. A minority view (e.g. Rodrik, 1998; Wyplosz, 2002) is that this principle, based on the questionable assumption that financial markets do not suffer from significant failures, is not verified in practice. Increasing liquidity may improve market depth and allow for better risk diversification, but it may also make capital more footloose and thus complicate the task of the authorities as they contemplate a regime change. This interpretation is buttressed by the role of short-term debt, which is found in Regression (3) to reduce the probability of a peaceful exit.⁷

3.3. The Role of Political Variables

The political freedom variable, which is available for all sample cases, never appears to affect the outcome of the exit, in line with the observation in Table 5. The index of corruption perception is missing for many countries, so Regression (6) involves a much reduced sample, with generally poorer results. Yet, in that regression, the corruption index is highly significant and, as expected, it adversely impacts the probability of a peaceful exit.

3.4. Robustness Checks

An exit has been defined as peaceful when the market-determined exchange rate depreciates by less than 25 per cent during the one-year period around the month of exit. In this section, we consider two alternative criteria: the first one is more stringent, allowing for no more than 15 per cent depreciation over the same period, the second one is more lax, with the threshold set at 40 per cent. The tighter threshold significantly reduces the number of successes to 16 from 27 with 39 failures instead of 28, while the

⁷ When both the external debt and the short-term debt are entered in the regression, the former is marginally significant and with a smaller coefficient than the latter, which is significant at the 1 per cent confidence level (but due to limited degrees of freedom, the estimation quality generally declines).

Table 6: *Probability of Peaceful Exit (Probit): Baseline*

	<i>Output Gap</i>	<i>Infla- tion</i>	<i>Gross int. reserves (change)</i>	<i>Current Account</i>	<i>External Debt</i>	<i>Short- Term Debt</i>	<i>Financial Depth</i>	<i>Depth Before Exit</i>	<i>Fed Funds Rate</i>	<i>Incidence of Exits</i>	<i>Corrupt</i>	<i>McFadden R2</i>	<i>Obs. 1</i>	<i>Obs. 0</i>
1	25.64 1.96	-0.27 -3.30	1.72 1.97		-0.13 -2.38		-5.86 -2.34	-18.66 -2.18				0.70	26	15
2	26.60 1.87	-0.27 -3.16	1.66 1.76	0.04 0.72	-0.12 -2.13		-5.99 -2.24	-19.00 -2.01				0.71	26	15
3	11.31 2.44	-0.10 -1.63	-1.27 -1.66			-0.30 -2.66	0.77 0.65	-18.30 -2.76				0.54	26	6
4	25.44 2.31	-0.26 -3.65	1.83 2.53		-0.12 -2.56		-4.61 -2.09	-18.70 -2.63	-0.23 -2.37			0.74	26	15
5	33.82 2.94	-0.36 -4.26	2.19 2.36		-0.16 -3.53		-7.85 -3.45	-21.29 -2.26		-11.68 -1.89		0.75	26	15
6	-1.53 -0.34	0.04 1.31	7.20 2.39		-0.09 -1.99						0.70 2.60	0.64	17	12

Notes: All the right-hand side variables concern the 12-month period – or the calendar year – before the exit. z-stats in second line. Constant not reported. QML (Huber/White) standard errors and covariance.

threshold of 40 per cent has a limited impact on the classification, with 30 successes and 25 failures. The corresponding results are shown in the Appendix, Tables A1 and A2, respectively.

The results shown in Table 6 are generally found to be quite robust to the precise choice of criterion. The evolution of gross international reserves does not seem to affect the probability of success in the stringent definition, but the pre-exit rate of depreciation still does, suggesting that it does not matter whether the exit follows a serious loss of reserves provided it occurs before a significant fall in the exchange rate.⁸ The effect of the inflation rate is less well established under the stringent definition, although it generally remains significant at the 10 per cent confidence level.

The main difference occurs in the case of the lax definition, where the budget balance now enters significantly but with a surprisingly negative sign. This effect is estimated conditional on the output gap and on the size of the (external) debt. When any of these two variables is removed, the coefficient remains negative but becomes highly non-significant (not shown). One possible interpretation is that just one year of a budget deficit does not matter as long as the economy is not in recession and the debt remains moderate.

Table 7: *Marginal Effects on the Probability of Peaceful Exit*
(percentage points)

	<i>Lower Inflation</i>	<i>Higher Output Gap</i>	<i>Increase in GIR</i>	<i>Lower External Debt</i>	<i>LowerPre-exit Depreciation</i>
Effect of:	10 p.p.	1%	10 p.p.	10% of GDP	10 p.p.
Effect on probability	31.0	2.9	1.9	13.9	18.5

Note: estimated at sample mean, based on regression 5 in Table 6.

IV CONCLUSION

This study is an exploration of the conditions under which an exit strategy can be peaceful, where success is defined as a moderate depreciation or an appreciation at the time of exit. This is a topic which has attracted limited attention so far, with little available empirical evidence. As any exploratory work, the results provided here should be seen as highly tentative. Yet, they provide a fairly clear-cut picture, with a few surprises.

⁸ Note that the success criterion concerns the overall depreciation before and after exit. This means that the rate of pre-exit depreciation is partly included in the definition of the left-hand side variable.

By and large, the central message echoes the work of Eichengreen and Masson (1998): cool-blooded exits, enacted when the macroeconomic conditions are favourable, are much easier than when they are forced, the unavoidable outcome of intense speculative pressure. In other words, countries which contemplate leaving a peg of whichever variety would be well advised to make the move when it is the least necessary and the least expected. This result runs against the instincts of policymakers but it is unlikely to be surprising to economists.

An aspect of this message concerns the external conditions. Currency crises are often contagious⁹ and so are forced exits. Even if domestic conditions are sufficiently favourable that no crisis is likely, contagion can suddenly occur and force an exit which is then unlikely to be peaceful. This is yet another reason not to delay exiting from a peg once the option is seen as desirable in principle.

There are also some surprising results. In general, efficient and deep financial markets do not help with exits. There is even some evidence that they might hurt, presumably because capital flows are larger and faster when the markets are efficient. This raises an interesting question. The general principle of the sequencing of liberalisation is that financial opening comes last. The inconsistent trilogy principle, which underpins the two-corner strategy, implies that a fixed exchange rate regime is unlikely to survive financial opening. Presumably, contemporary conventional wisdom would advise liberalising governments with the following sequence: internal goods market liberalisation, trade opening, internal financial liberalisation, external financial liberalisation and, finally, increasing the flexibility of the exchange rate regime. The results found in this paper suggest that increasing the flexibility of the exchange rate regime should be moved one step, possibly even two steps ahead. The problem is that a floating exchange rate requires an efficient exchange market, which in turn calls for internal and external financial liberalisation, thus backing the classic sequencing rule. The solution could be simultaneity, a big bang approach that combines internal and external financial liberalisation with increasing the flexibility of the exchange rate regime. Here again, the big bang approach may run against the instincts of policymakers. Finally and unsurprisingly, good governments are more likely to exit peacefully than corrupt ones. The channel of this effect is not examined here.

⁹ Following the work of Rigobon (1999), there is some controversy regarding the existence of contagious effects. Recent work by Wälti (2003) shows that Rigobon's test is suffering from very low power and that the methodology proposed by Favero and Giavazzi (2002), who find contagion effects, is more powerful.

REFERENCES

- ASICI, AHMET, 2002. "On Crisis-Driven and Peaceful Exit From Peg to More Flexible Arrangements: Factors Behind Successful Exits", Master's Thesis, Graduate Institute of International Studies, Geneva, October.
- BECK, THORSTEN, ASLI DEMIRGÜÇ-KUNT and ROSS LEVINE, 1999. "A New Database on Financial Development and Structure", The World Bank, June.
- GUILLERMO, CALVO and CARMEN REINHART, 2002. "Fear of Floating", *Quarterly Journal of Economics*, Vol. 117, No. 2, pp. 379-408.
- CHANG, ROBERTO and ANDRÉS VELASCO, 1999. "Liquidity Crises in Emerging Markets: Theory and Policy", in B. Bernanke and J. Rotemberg (eds.), *NBER Macroeconomics Annual 1999*, Cambridge, MA: MIT Press.
- DEMIRGUC-KUNT, ASLI and ROSS LEVINE (eds.), 2001. *Financial Structure and Economic Growth, A Cross-Country Comparison of Banks, Markets, and Development*, Cambridge, MA: MIT Press.
- EICHENGREEN, BARRY, 1994. *International Monetary Arrangements for the 21st Century*, Washington, DC: The Brookings Institution.
- EICHENGREEN, BARRY and PAUL MASSON, 1998. "Exit Strategies: Policy Options for Countries Seeking Greater Exchange Rate Flexibility", *IMF Occasional Paper* 168.
- EICHENGREEN, BARRY, ANDREW ROSE and CHARLES WYPLOSZ, 1995. "Exchange Market Mayhem: The Antecedents and aftermath of Speculative Attacks", *Economic Policy*, Vol. 21, pp. 249-312.
- FAVERO, CARLO and FRANCESCO GIAVAZZI, 2002. "Is the International Propagation of Financial Shocks Non-linear? Evidence from the ERM", *Journal of International Economics*, Vol. 57, No. 1, pp. 231-246.
- FISHER, STANLEY, 2001. "Exchange Rate Regimes: Is the Bipolar View Correct?", *Journal of Economic Perspectives* Vol. 15, No. 2, pp. 3-24, Spring
- FRANKEL, JEFFREY and ANDREW ROSE, 1996. "Currency Crashes in Emerging Markets: An Empirical Treatment", *Journal of International Economics* Vol. 41, pp. 351-366.
- HAUSMANN, RICARDO and LILIANA ROJAS-SUAREZ (eds), 1996. *Volatile Capital Flows: Taming their Impact on Latin America*, Baltimore: Johns Hopkins University Press.
- KAMINSKY, GRACIELA and CARMEN REINHART, 1999. "The Twin Crises: The Causes of Banking and Balance-of-Payments Problems", *American Economic Review* Vol. 89, No. 3, pp. 473-500.
- LEVY-YEYATI, EDUARDO and FEDERICO STURZENEGGER, 2002. "Classifying Exchange Rate Regimes: Deeds vs. Words", unpublished paper, Business School, Universidad Torcuato Di Tella.
- PERSSON, TORSTEN and GUIDO TABELLINI, 2000. *Political Economics*, Cambridge, MA: MIT Press.
- REBELO, SERGIO and CARLOS VÉGH, 2002. "When Is It Optimal to Abandon a Fixed Exchange Rate?", unpublished, University of California at Los Angeles, April.
- REINHART, CARMEN and KENNETH ROGOFF, 2002. "The Modern History of Exchange Rate Arrangements: A Reinterpretation", NBER Working Paper 8963.

- RIGOBON, ROBERTO, 1999. "On the Measurement of the International Propagation of Shocks", NBER Working Paper 7354.
- RODRIK, DANI, 1998. "Who Needs Capital Account Convertibility?", in P. B. Kenen (ed.) *Should the IMF Pursue Capital Account Convertibility?*, Princeton Essay in International Finance No. 207.
- WÄLTI, SÉBASTIEN, 2003. "Testing for Contagion in International Financial Markets", Unpublished paper, Geneva: The Graduate Institute of International Studies.
- WYPLOSZ, CHARLES, 2002. "How Risky is Financial Liberalisation in the Developing Countries?", *Comparative Economic Studies* Vol. 44, No. 2-3, pp. 1-26, Summer-Fall.

APPENDIX
ROBUSTNESS CHECKS

Table A1: *Probability of Successful Exit (Probit): Stringent Definition*

	<i>Output Gap</i>	<i>Infla- tion</i>	<i>Gross int. Reserves (change)</i>	<i>Budget Balance</i>	<i>External Debt</i>	<i>Short- Term Debt</i>	<i>Financial Depth</i>	<i>Depth Before Exit</i>	<i>Incidence of Exits</i>	<i>Corrupt</i>	<i>McFadden R2</i>	<i>N. Obs. = 0</i>	<i>N. Obs. = 1</i>
1	9.90 1.94	-0.08 -1.67			-0.03 -2.65		-2.45 -1.88	-9.80 -2.37			0.47	32	10
2		-0.09 -1.87		-0.16 -1.69	-0.05 -3.30		-1.56 -1.29	-5.82 -3.00			0.49	29	9
3	7.59 1.79	0.01 0.21				-0.53 -3.22		16.24 -2.30			0.64	31	7
4	9.54 1.81	-0.09 -1.54			-0.03 -2.62		-2.48 -1.92	-8.62 -2.83	-5.39 -1.18		0.49	32	10
5	7.30 1.56	-0.11 -1.58	0.53 1.01		-0.02 -2.03		-2.31 -1.52	-9.80 -2.08			0.48	32	9
6	-10.55 -2.03	0.00 -0.43			-0.02 -0.99			-9.17 -2.28		0.34 2.68	0.52	23	6

Notes: All the right-hand side variables concern the 12-month period – or the calendar year – before the exit. z-stats in second line. Constant not reported. QML (Huber/White) standard errors and covariance.

Table A2: *Probability of Successful Exit (Probit): Lax Definition*

	<i>Output Gap</i>	<i>Infla- tion</i>	<i>Gross int. reserves (change)</i>	<i>Current Account</i>	<i>Budget Balance</i>	<i>External- Debt</i>	<i>Short term Debt</i>	<i>Financial Depth</i>	<i>Depth Before Exit</i>	<i>Incidence of Exits</i>	<i>Corrupt</i>	<i>McFadden R2</i>	<i>N. Obs. = 0</i>	<i>N. Obs. = 1</i>
1	31.85 2.87	-0.26 -3.37	2.72 2.58			-0.15 -2.91		-6.63 -3.07	-11.36 -3.09	-16.30 -3.07		0.68	23	18
2	46.53 2.04	-0.28 -2.58	1.88 2.22	0.22 1.62		-0.13 -2.47		-6.94 -2.42	-10.87 -2.92	-18.64 -3.12		0.73	23	18
3	33.68 2.40	-0.40 -3.81	3.45 2.39		-0.42 -2.23	-0.22 -2.78		-6.37 -2.90	-13.78 -1.97	-13.66 -1.65		0.75	21	16
4	46.48 3.81	-0.43 -4.70	2.20 1.48	0.38 1.74	-0.52 -1.95	-0.21 -2.73		-5.97 -2.56	-12.25 -1.85	-11.83 -2.12		0.81	21	16
5	48.09 3.60	-0.40 -3.26	3.31 1.93			-0.25 -3.26	-0.66 -3.12	-6.70 -1.85	-20.49 -3.35	-13.38 -2.21		0.67	23	9
6	7.79 0.87	0.08 1.50	11.90 2.58			-0.13 -2.42					1.10 2.89	0.66	15	14

Notes: All the right-hand side variables concern the 12-month period – or the calendar year – before the exit. z-stats in second line. Constant not reported. QML (Huber/White) standard errors and covariance.