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CREDIBILITY, DEBT AND UNEMPLOYMENT: IRELAND'S FAILED STABILIZATION

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ABSTRACT

Can the credibility of a stabilization plan affect the output costs of disinflation? The new classical economics has asserted this possibility, but little evidence has been brought forward. This paper analyzes the stabilization program of Ireland in the 1980s against the background of the new classical economics. The main questions are two: Did EMS membership yield a special credibility bonus? And is the stabilization program sustainable. The answer to both questions is negative.

The idea of a credibility bonus is an attractive potential policy implication of EMS membership: by joining the EMS, playing by the rules of fixed exchange rates and benefiting from the stabilizing influence of German inflation targets, a country's policy makers achieve a dramatic turn around in expectations, in inflation and in long-term interest rates. But the evidence on international disinflation in the 1980s shows that it was not limited to EMS members; all OECD countries experienced sharply reduced inflation and a large drop in long-term nominal interest rates. EMS membership did not contribute to reduce the sacrifice ratio of disinflation. In fact Germany, on whose anti-inflation credentials the credibility effects are supposedly based has one of the highest sacrifice ratios among OECD countries.

Ireland did reduce inflation to the German level, but a serious public debt problem has emerged and the unemployment rate stands near 20 percent. This raises questions of the Sargent-Wallace kind about the sustainability of the program.

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CREDIBILITY, DEBT AND UNEMPLOYMENT: IRELAND'S FAILED STABILIZATION[1]

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A much debated issue in the macroeconomics of stabilization is the existence of a credibility effect and how to reap it. Can confidence in a stabilization plan can affect the output costs of a disinflation? The new classical economics has asserted that this is, indeed, the case: a new program (under new management) if it were fully credible, would lead economic agents to set wages and prices in accordance with the announced program. The transition to low inflation could be achieved without much delay and without significant unemployment. Long-term nominal asset prices would quickly reflect the change in expectations. Indeed, in the perspective of the new classical economics any different outcome would be the consequence of a misreading of the program or a lack of belief in the policy makers' determination to actually carry out the announced measures.

The credibility literature has blossomed in the aftermath of the work of Barro and Gordon (1983) and Backus and Driffill (1985). The theory is clear and plausible, but the evidence is primarily anecdotal. There are, however, some attempts to lend empirical support to this strand of chinking. In particular Sargent (1982, 1983, 1986) has given a strong reading of this

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[1]This paper is part of a wider research project on the limits of public debt undertaken jointly with Olivier Blanchard. I owe my interest in the Irish case to Terence Gorman and Patrick Minford. I am indebted to Francesco Giavazzi and Jean-Pierre Danthine for helpful comments.

[2]For a survey and discussion see Fischer (1987), Blanchard and Fischer (1989) and Persson (1988).

paradigm in his description of the ends of four hyperinflations. He has also interpreted the 1926 Poincare stabilization in France as a clear example of the model's predictions.[2]

It is interesting to look at the recent disinflation experience worldwide, but particularly in several high-inflation countries in Europe to judge the extent to which success at reducing inflation can be seen as another instance of these textbook cases of credible stabilization. The sharp break in the pattern of high inflation and high nominal interest rates in the early 1980s in Ireland, Italy, the UK or Denmark can certainly be interpreted as a response to the shift in policies and a sign of confidence and improved expectations.

The emphasis on the central role of expectations is an attractive interpretation of the policy implications of EMS membership: by joining the EMS, playing by the rules of fixed exchange rates and benefiting from the stabilizing influence of German inflation targets, a country's policy makers achieve a dramatic turn around in expectations, in inflation and in long-term interest rates. But there is not only the question whether EMS membership did in fact play a critical role. There is also a wider failure of the paradigm in a case like Ireland's: while inflation and long-term nominal interest rates did decline, real interest rates turned sharply higher (fiscal correction notwithstanding) and unemployment increased massively, as did public debt. We therefore conclude that Ireland's experience bears more resemblance to the

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[2]For commentary on the Sargent interpretation see Eichengreen (1986, 1987), Webb (1987) and Dornbusch (1981, 1987, 1988).

unsustainable path of Sargent-Wallace "monetarist arithmetic" than to Poincare-style costless stabilization. This paper concentrates on the experience of Ireland; it attempts to identify special EMS effects in the stabilization but also places it in the wider context of what happened to inflation and interest rates in the group of industrial countries.

Our analysis starts out with a sketch of the new classical paradigm, using the Poincare stabilization as a concrete example of the difficulty encountered in interpreting a concrete case. From there we proceed to an analysis of the decline in inflation and interest rates in the 1980s. The following two sections deal with the specific experience of Ireland. The concluding section draws some policy conclusions.

1. THE NEW CLASSICAL ECONOMICS AND THE CREDIBILITY PARADIGM

Discussion of stabilization does not take long before it comes to "credibility". Stabilization efforts succeed if they are credible, and the more credible they are the less costly they will be in terms of output losses. The favorite policy for credibility theorists is a startling reversal of a critical element of instability by a drastic, public act, immediately recognized as such. Markets then adjust instantly to the new reality and the economy, in no time, acts out the new and stable equilibrium. In this section we briefly review the theoretical issues in the discussion of stabilization policy with credibility effects.

1.1 The Theory

Rational expectations imply that economic agents use all available information to predict their economic environment, including government

policies. The equilibrium hypothesis is that economic agents set prices, wages and interest rates on the basis of all available information in a manner that achieves their plans. There is no anticipated, involuntary unemployment in this world. In the new classical model a fully understood and believed shift in monetary policy to a noninflationary stance should not lead to any protracted unemployment: economic agents will recognize the shift in policy and will set a the future path of all nominal variables --wages, prices, interest rates-- to be consistent with this new monetary regime under conditions of full employment.

Sargent (1986,p.113) has characterized the implications of the new classical economics in contrasting this school of thought with the Phillips-curve tradition:

"We now turn to the second group of theories of inflation, which are the

But Sargent (1986,p. 114) also notes that in those circumstances where there is no clearly identifiable, credible change in regime a policy shift can prove costly. Commenting sceptically on the Thatcher experiment, he notes:

> "..[i]t is difficult to interpret Thatcher's policy actions in terms of the kind of once-and-for-all widely believed, uncontroversial, and irreversible regime change that rational expectations equilibrium theories assert can cure inflation at little or no cost in terms of real output...Where these conditions are not met, rational expectations equilibrium models imply that contractionary monetary and fiscal policy actions are likely to be costly in terms of real output and unemployment..

The alternative to the equilibrium model would be a Taylor-Fischer model of overlapping long-term wage contracts. These wage contracts would be

reflect rationally the public's expectations about monetary and fiscal policy. Unlike in the equilibrium model, however, the concern for relative wages of different groups (or for real wages) leaves open the possibility of at least temporary unemployment as the economy adjusts to a shock or to a change in the monetary regime.[3] Credibility effects must be added as an extra source of unemployment. This latter possibility, of course, also exists in the equilibrium approach. In fact, Sargent (1986,p.115) comments (in contrasting the Thatcher stabilization with that of Poincare) on the difficulty in assessing gradualist versus shock treatments.

> "Gradualism invites speculation about future reversals, or U-turns, in policy. Large contemporary government deficits unaccompanied by concrete prospects for future surpluses promote realistic doubts about whether monetary restraint must be abandoned sooner or later to help finance the deficit. Such doubts not only call into question the likelihood that the plan can succeed in reducing inflation permanently but also can induce high real costs in terms of depressed industry and lengthened unemployment in response to what may be viewed as only temporary downward movements in nominal demand due to the monetary restraint."

Subsequent literature in the new classical mode has focused on expectations formation in a context of imperfect information games as the central source of a program's real effects. Following the work of Barro and Gordon (1983) the literature views the inflation issue as a game between the public and a policy maker whose anti-inflation attitudes are not known to the public with certainty. Policy makers may or may not be strongly anti-inflation oriented; consequently hey may or not seek to fool the public into a low-

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[3]See Taylor (1982) and McCallum (1984) for examples of the effects of an unanticipated shift in the monetary regime.

inflation belief in order to exploit that situation by creating an output-raising inflation surprise. To the extent that the public updates its beliefs about policy makers on the basis of actual inflation experience, inflationist policy makers have an interest in building anti-inflation credentials which they then would hope to exploit later in a more dramatic inflation surprise. That possibility exists because the public never knows with certainty the policy maker's true preferences.

Persson (1988) in his survey shows that credibility is central to the effects of regime changes in the new classical model. Work by Backus and Driffill (1985, 1987) has used the reputation model to show optimal disinflation policies. Because the reputation issue is central to the imperfect information game disinflation is front-loaded: by creating immediate high unemployment policy makers establish their credibility.

The chief point of the literature is that the absence of credible precommitment creates information problems that cause unemployment in the process of regime changes. The more a government is able to precommit its policies or unambiguously signal its intent, the smaller the misunderstanding and the resulting unemployment. Alesina (1988b) has extended the analysis to the political business cycle in noting the implications of the game-theoretic model of policy for macroeconomics between elections. Interpreted in the context of the credibility issue major policy commitments such as EMS membership might be expected to carry disinflation bonuses because they change the policy game.

1.2 Judging Credibility

How would one in fact, at the time of a stabilization program, judge the degree to which a program inspires credibility? Sargent's own qualifications make entirely clear that a fully credible stabilization must be a rare event. The problem is that at the outset of a program there is no assurance of how effective the measures in fact will be and whether they can be sustained. Programs may look poor from the outset and in fact fail; but they may also look poor but then succeed as a result of unexpectedly favorable developments. Alternatively, a program, may look as if it were certain to succeed and then is brought down by unexpectedly unfavorable developments. Finally there is the rare program that looks good and in fact turns out to be successful. In those cases where stabilization in fact succeeded there is rarely any evidence that this success was apparent from the outset.

In Dornbusch (1987) I review the course of stabilization in Germany to make the point that confidence and credibility trailed by months behind the fact of stabilization. In Dornbusch and Fischer (1986) we show the difficulty in judging at the outset failing and successful programs. We note in particular that out of 3 stabilization efforts, two fail. The same point has been made by Webb (1988).

Focusing on the credibility of a program in the perspective of the new classical economics, any discrepancy from full employment would be a reflection of less than full credibility. An alternative is to observe changes in long-term nominal interest rates. A decline in long-term interest rates

can be interpreted would be evidence that a stabilization program is supported by credibility. Disappearance of yield differentials, both on short and on long-term securities, show a disappearance of expectations of rising inflation and increasing currency depreciation Changes in long-term interest rates are then measures of how public confidence in stabilization is progressing.

Applying the term structure theory, the yield on long-term bonds reflects current and anticipated future short-term interest nominal rates.[4] For a given real interest rate, changes in the yield on long-term bonds represent changes in the path of expected inflation.

Credible stabilization leads to an expectation of disinflation and hence to reduced long-term interest rates. Conversely, a policy mix that is ultimately expected to become inflationary is reflected in high nominal long-term interest rates. Andersen and Risager (1987, 1988) have illustrated this reputation-based disinflation model by studying the path of interest rates in Denmark during the 1982 stabilization.

We turn next to the 1926 Poincare stabilization which illustrates many of the issues raised in this section.

1.3 An Illustration: The Poincare Stabilization

There are not many examples of "fully credible stabilization", but the 1926 Poincare stabilization in France has become the example par excellence as a result of Sargent's vigorous portrayal of the episode.

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[4]See Begg (1983) for the relation between the yield on long-term bonds and the sequence of future short rates.

1.3.1 The Events France had emerged from World War I with a substantial public debt. Would the country go the way of Germany, with hyperinflation, or the way of the UK with an attempt to restore the prewar parity of gold? Keynes (1926) discussed the issues of exchange rates, debts and budgets in his "Open Letter to the French Minister of Finance".[5] He saw France's large public debt as an obstacle to stabilization and argued that

> "the level of the Franc exchange will continue to fall until the commodity value of the franc due to the rentier has fallen to a proportion of the national income which accords with the habits and mentality of the country."

In fact, depreciation and inflation were chosen in the early 1920s as the means of reducing the real value of debt. The inflation was created basically by maintaining low interest rates on the floating debt, thus assuring exchange depreciation and ultimately an exchange rate collapse as shown in Figure 1. In 1921-24 the debt-GDP ratio averaged 167 percent; by 1926 it had already declined to only 114 percent. Against this favorable background Poincare undertook the decisive 1926 stabilization.

Successful stabilizations can only be judged ex post; many stabilizations in their early stages (like babies) show great promise and only later can one determine which were the decisive events that made this one succeed and that one fail. The Poincare stabilization was different as judged by the urgency of the situation, the decisiveness of the measures and the special role of Poincare as a known and established fiscal conservative. Here is how Wolfe (1951,p.34) describes the events:

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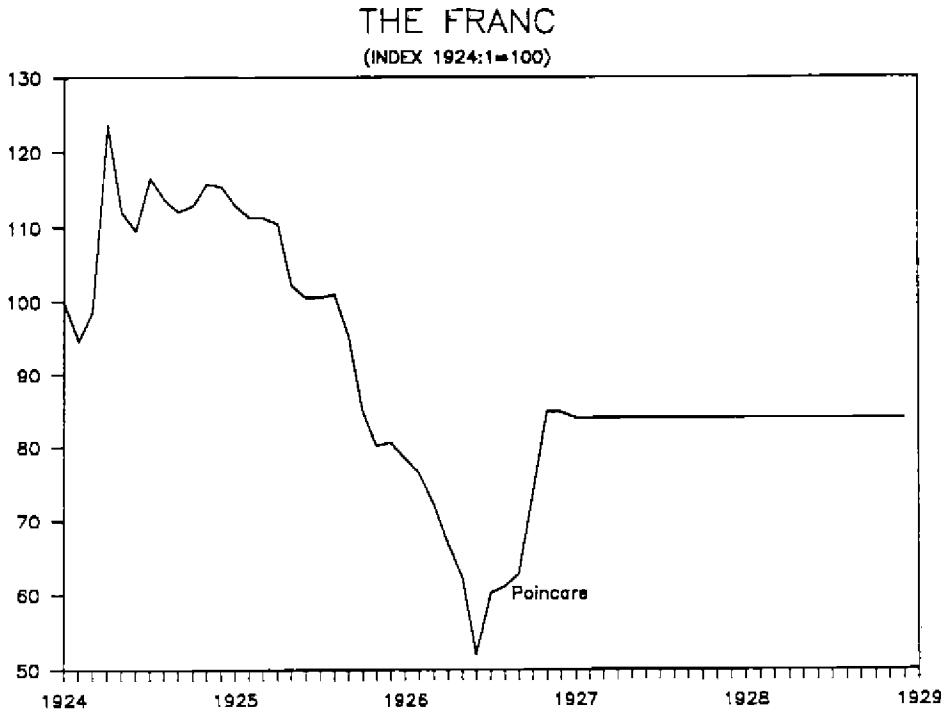
[5]See Keynes (1963, 1923), Rogers (1929), Haig (1929), Wolfe (1951).

FIGURE 1


THE FRANC
(INDEX 1924:1=100)
130
120
110
100
90
80
70
60
50
1924
1925
1926
1927
1928
1929
Poincare

> ..a new National government was formed under Raymond Poincare, pledged to save the Franc at all costs. A radical tax bill giving government authority to increase all taxes 20 percent was jammed through the Chamber of Deputies... coupled with a cut of more than a billion francs in government expenditures."

An external loan was arranged and the proceeds were used to reverse currency depreciation. The Franc appreciated within a month by 28%. Wholesale prices had been rising at 8-10% per month, now they fell for two months. Stability had been achieved!

These measures and events convey precisely what we would understand to be the essential measures for successful stabilization. But (with apologies to credibilists) the description just offered is that of the failed 1924 stabilization, not of the successful 1926 stabilization.

Having made our point, consider next the July 1926 stabilization. At the center of the stabilization is (once again) Poincare. Sargent writes:

> "Raymond Poincare was a fiscal conservative, who had raised taxes while Prime Minister in 1924, and was known to advocate balanced budgets and France's return to gold...as soon as he assumed control of the government, and even before his program was enacted by the legislature, the Franc recovered and inflation stopped... The stabilization of the French Franc was followed by several years of high prosperity. The French stabilization thus seems to fit the prediction of the rational expectations equilibrium approach."

The immediate turnaround in the French Franc (Figure 1) does, indeed, convey the impression of an overnight change in the public's perception of policy. Interestingly, the budget had already been balanced before the crisis got underway. Makinen and Woodward (1987) recognize this point and show that the crisis was related to the floating debt and interest rate ceilings, not to the budget. Political instability, in particular the notion of a capital levy

promoted by the Left, had added to the motives for capital flight. With Poincare holding office there was an immediate recognition that special taxation of capital would not be a risk anymore, at least for the time being. Taxation did increase, but the immediate reason for the strong appreciation is no doubt a sharp increase in short-term interest rates shown in Figure 2. An increase interest rates always is a means to attract capital inflows, bring about exchange appreciation and thus impose at least temporary inflation stabilization.

Was the Poincare stabilization perceived by the public as a relatively permanent improvement for public finance, inflation and depreciation? The movement of long-term bonds--the yield on the 3% rentes shown in Figure 2-- suggests otherwise. There was, in fact, no sharp and immediate drop in the long-term interest rate. Between May and November 1926 the yield on 3% rentes only fell from 6.29 to 6.02 percent. Moreover, throughout 1926-27 (excepting mid-1926) the yield on long-term bonds exceeded the short rate, thus suggesting a belief that stabilization remained tentative.[6] Of course, the realized real short-term interest rate was exceptionally high: In the 12 months from July 1926 wholesale prices fell by 25.8 percent and consumer prices by 3 percent and that is how stabilization was achieved for the time being.

The very gradual decline of the yield on long-term bonds, compared with the rapid recovery of the Franc, suggests that exchange rate policy was immediately credible. But that credibility takes a very special form: credible

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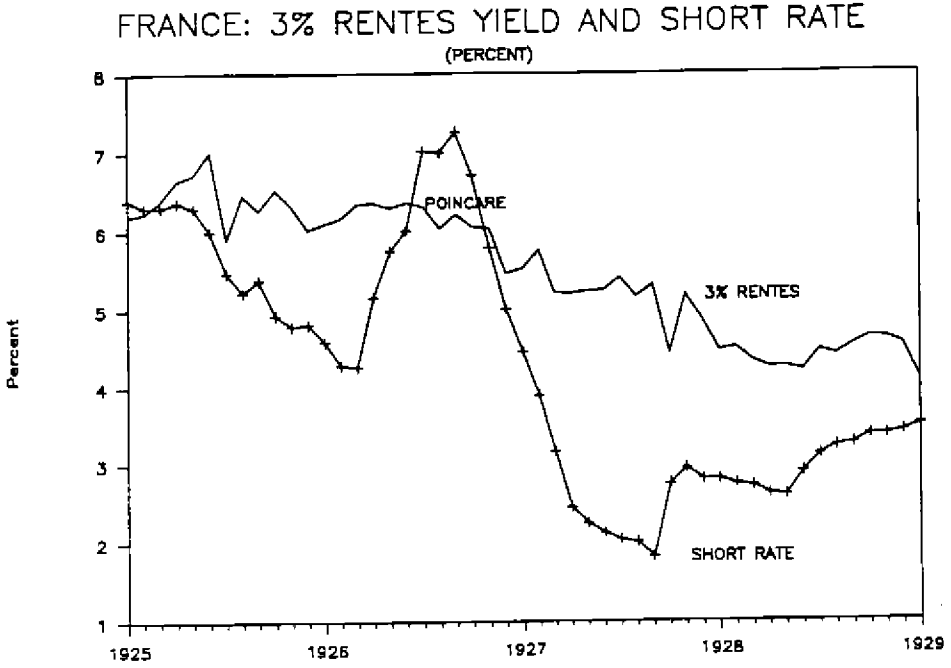
[6]In fact, even 2 years after successful stabilization the yield on long-term bonds remained higher than after the breakdown of the unsuccessful 1924 stabilization.

FIGURE 2


FRANCE: 3% RENTES YIELD AND SHORT RATE
(PERCENT)
Percent
8
7
6
5
4
3
2
1
1925
1926
1927
1928
1929
POINCARE
3% RENTES
SHORT RATE

until further notice. In that case one would expect, with a positive short-term interest differential, an inflow of capital which supports the exchange rate policy. Following the informal exchange stabilization, long-term bond yields did not fall much, suggesting that stabilization remained tentative until it was validated by the sheer experience of the new policies and their viability.

Models of speculative attack on a fixed exchange rate regime show in fact exactly this possibility. Even policies that are ultimately unsustainable, they can survive for a while provided they are supported by reserves and/or high interest rates.[7] This is the key to understanding why some of the programs that ultimately fail can be kept up for a while.

1.3.2 Evaluation: The Poincare stabilization, judged in the context of the credibility literature helps make two points. First, there is no realistic way of telling whether a particular stabilization program will in fact succeed with certainty or fail without question. The Poincare program did succeed, there remains the question whether it succeeded because of the fiscal reform of the previous years, the erosion of the real value of the public debt that had already taken place before or because of the decisive support to the exchange rate.

The second point is that successful stabilization is rarely if ever established from one day to the next. The political circumstances in which instability emerges do not change overnight. Stiff measures might be taken, but

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[7] See Salant and Henderson (1978), Krugman (1979), Flood and Garber (1984) and Dornbusch (1987).

there is no assurance that they will not be revoked the next day (as was the case in France in 1924). There is no effective precommitment and hence stabilization is something that can only be established with the passage of time. Once the public adapts to the new reality, and views stability as the rule, this stability is extrapolated and is reflected in reduced long-term interest rates. In the short run credibility thrives mostly from tight money and a fixed exchange rate. The behavior of long-term interest rates in France, following the 1926 stabilization, certainly does not suggest an immediate confidence in a sharp break of the inflation process.

1.4 Unpleasant Monetarist Arithmetic

A final strand of literature highlights the implications of unsustainable (and hence incredible) policy regimes. Sargent and Wallace (1981) have explored the implications of an unsustainable shift to tight money. They consider a world where budget deficits are financed by money and debt. A shift toward reduced money creation implies accumulation of debt and a rising interest burden.

If debt growth becomes excessive the shift to tight money cannot be sustained: ultimately, to avoid insolvency, inflationary money creation becomes necessary as a means to finance the accumulated interest bill. Sargent and Wallace conclude(Sargent (1986,p.159):

> "without help from the fiscal authorities, fighting current inflation with tight monetary policy must eventually lead to higher future inflation."

This problem is of interest because in several European countries, most notably in Ireland, inflation stabilization by tight money has, in fact,

translated into an extraordinary fiscal problem: the debt ratio has risen far above 100 percent and keeps rising. There is a genuine question of how the mushrooming of debt can be stopped and whether future inflation will be the answer. Historically there is ample precedent for debt reduction through inflation and capital levies as Alesina (1988a) and Eichengreen (1988) have shown. The question is which way Ireland might go. If high future inflation, with the benefits of seigniorage and inflationary debt liquidation is the answer, the question arises why nominal long-term interest rates have declined so much.

We turn next to the Irish stabilization to see how much credibility factors can be discerned in that experience.

2. DISINFLATION IN IRELAND

After having pegged its exchange rate to the pound sterling since 1922 Ireland abandoned the sterling peg in 1978 and joined the EMS. And as the EMS became increasingly a zone of monetary stability, Ireland played the game with great success. By 1988 inflation had declined practically to the German level! The Irish experience would thus seem to bear out the argument that EMS membership was an effective disinflation device for countries who had lacked a firm anchor and hence were experiencing drifting, high inflation rates.

This argument has been advanced in a number of recent papers including Akerholm (1988), Collins (1988), Giavazzi and Pagano (1987), Giovannini and Giavazzi (1987, 1989), as well as Andersen and Risager (1987). Akerholm summarizes this hypothesis as follows.

> "By joining an international fixed exchange rate area like the EMS, the country could demonstrate a stronger commitment to a fixed exchange rate; a depreciation is no more a unilateral affair but requires the approval of all the participants in the currency area. Furthermore, short-term borrowing facilities and co-operative arrangements would be made available in order to safeguard the financial base for intervention at times of market unrest. Hence, the risks of a depreciation are reduced, which should help reduce risk premia and impose more flexibility on the behavior of the labor market."

As we shall see asset markets did, in fact, show a response in the sense of credibility although that effect did not go all the way to the elimination of yield differentials. Because yield differentials did remain high, while inflation differentials vanished, real interest rates increasingly became a problem. But an even more important issue was the lack of a flexible labor market. A major fiscal contraction had no counterpart in a crowding-in of net exports via increased international competitiveness. The elimination of inflation therefore gave rise to a fiscal problem and unemployment of unprecedented proportion.

2.1 Inflation and Interest Rates

The yield on 15-year bonds in Ireland peaked in February 1982 and by October had declined by 5 percentage points. The rapid decline of long-term interest rates was matched, as shown in Figure 3, by a sharp decline in inflation. Table 1 shows the decline in yields across maturities. Following the rapid decline of rates by 400 basis points in 1982; they declined by another 400 basis points over the period to 1988. Inflation fell even more, so much so that by mid-1988 Irish inflation was not significantly different from that of Germany.

FIGURE 3

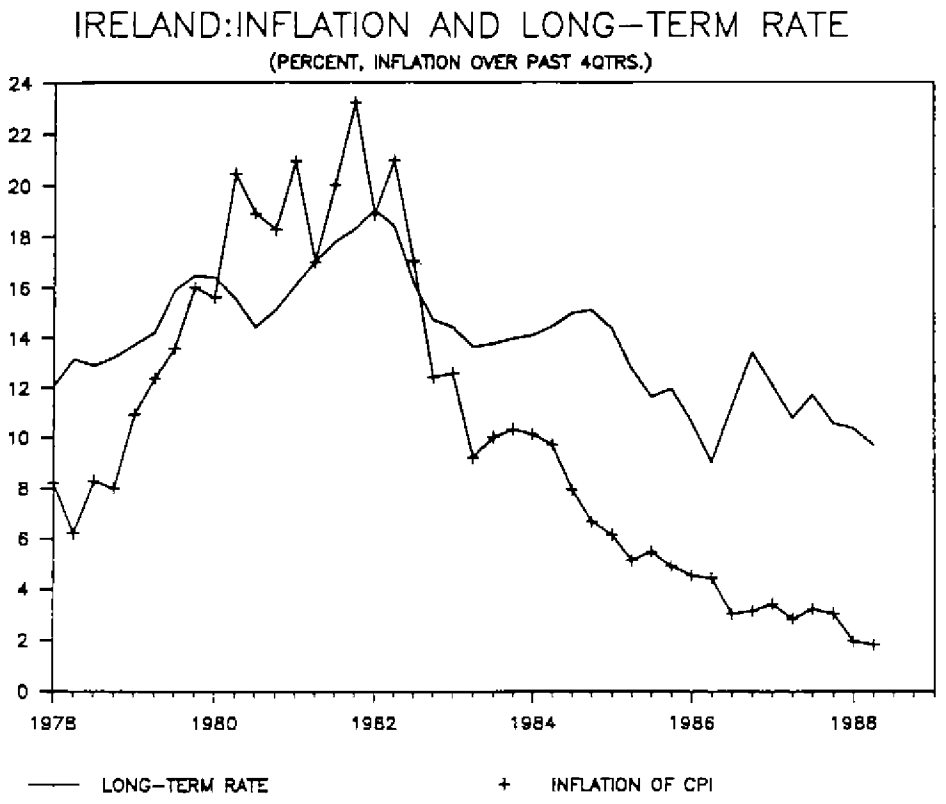

IRELAND:INFLATION AND LONG-TERM RATE
(PERCENT, INFLATION OVER PAST 4QTRS.)
24
22
20
18
16
14
12
10
8
6
4
2
0
1978
1980
1982
1984
1986
1988
LONG-TERM RATE
+ INFLATION OF CPI

Table 1 Irish Bond Yields
(%, quarterly average)

	Money Market	1 Year	5 Years	15 Years
1982:I	19.4	18.7	18.7	19.0
1982:IV	14.6	13.3	14.7	14.7
1988:II	7.5	6.8	9.6	9.7

Source: Central Bank of Ireland and IMF

The magnitude of the decline in yields is far more rapid and sizeable than what occurred during the Poincare stabilization. The immediate question is to know what happened in politics and/or economic policy to bring about so massive a change in interest rates? Table 2 shows the main events in politics, monetary, fiscal and exchange rate policy.

Table 2 Main Economic and Political Events

Date	Event
1981:	
May 21	Announcement of Election
June 30	Coalition of Fine Gael and Labour Parties takes office with Garrett Fitzgerald as Taoiseach
July 21	Supplementary budget
Oct. 4	EMS realignment, Irish pound unchanged but devalued 5.5% against DMark.
Nov.23	White paper "A Better Way to Plan the Nation's finances"
1982:	
Jan. 27th	Budget tightening defeated in the Dail and government Fine Gael/Labor coalition government falls.
Feb. 2nd	EMS realignment, but Irish central rate unchanged
March 9th	Fianna Fail Government with Charles Haughey as Taoiseach
March 25th	Tight budget of January passed (with some changes)
April 14th	Central bank "Statement on Monetary Policy" announces 14% credit growth guideline with 7% for the 6 months to August 1982.
June 12th	EMS realignment with Irish central rate unchanged, but devalued

	relative to DMark.
July 30th	Freeze on special pay increases in the public sector and embargo on recruitment until March 1983.
Oct. 21st	White Paper "The Way Forward" is published proposing severe cuts and the elimination of the budget deficit by 1986.
Nov. 4th	Announcement of General Election
Dec. 14th	Coalition of Fine Gael/Labor takes office with Garrett Fitzgerald as Taoiseach
1983:	
Feb. 9th	New budget, including deindexation of tax brackets, higher top rate, increase in VAT rates by 5 percentage points, 1 percent income levy, residential property tax
Feb. 20th	Central Bank announces 11% growth credit guideline
March 21st	EMS realignment, Irish central rate depreciated by 3.5 percent.
July 29th	Additional measures to raise revenues
1984:	
Jan. 25th	New budget-- more taxes
Feb.25th	Central Bank announces no formal credit guidelines, but recommends 10 percent.
1985:	
Jan. 30th	New budget-- more taxes
March 8th	Central Bank sets 8% "indicative" credit guideline
1986:	
Jan. 29th	New budget-- more taxes
March 6th	EMS realignment, Irish parity unchanged but devalued 3% relative to DMark
August 2nd	EMS realignment: Irish pound devalued by 8% against EMS currencies
1987:	
Jan. 12	EMS realignment: Irish pound central rate unchanged but devalued 3% against DMark.
Jan. 21	General election announced for Feb. 17th
March 10th	Fianna Fail with Charles Haughey as Taoiseach takes office
July 12th	Govt. announces voluntary public servant retirement scheme with an intention to shed 10,000
Oct. 12th	"Programme for National Recovery" agreement between government and social partners: agreement on budget balancing, pay, tax reform, 2.5 percent ceiling on public sector pay increases for 1988-90. Better targeting of govt. social policies
Oct. 13th	Estimates for 1988 imply a 6% reduction in nominal spending.
1988:	
Jan. 27th	New budget limits PSBR to 8.2% of GNP, down from 10.3 with spending cuts, tax base broadening.

Source: OECD Economic Surveys, Ireland, various issues

It is tempting to assign to EMS membership and specifically the policy of not seeking large realignments a central role in the shift of inflationary expectations. We investigate that hypothesis in more detail below.

2.2 The 1982 Adjustment

The height of instability prevailed at the beginning of 1982 when the government fell on the issue of a tight budget. Early 1982 provides a watershed not in the sense that the need and willingness to implement stabilization first became apparent. Certainly the need for austerity had been clear at least since 1981. Figure 4 shows the long-term interest differential with Germany. This differential increases sharply toward the end of 1981 and the beginning of 1982 and then falls off rapidly. The decisive fact of early 1982 was that a political consensus emerged to actually push these measures forward. Moreover, this consensus survived changes in government and thus gained momentum. The consensus supported four specific policy measures:

• A shift toward consistently positive and high real interest rates. Figure 5 shows the realized real short-term interest rate. After a pattern of mostly negative rates, starting in 1982 real rates are always positive and high.

• A fixed exchange rate policy in the context of the EMS provided a strong anchor. It is especially significant that in both 1982 EMS realignment Ireland maintained the central rate.

FIGURE 4

LONG-TERM DIFFERENTIAL: IRELAND-GERMANY

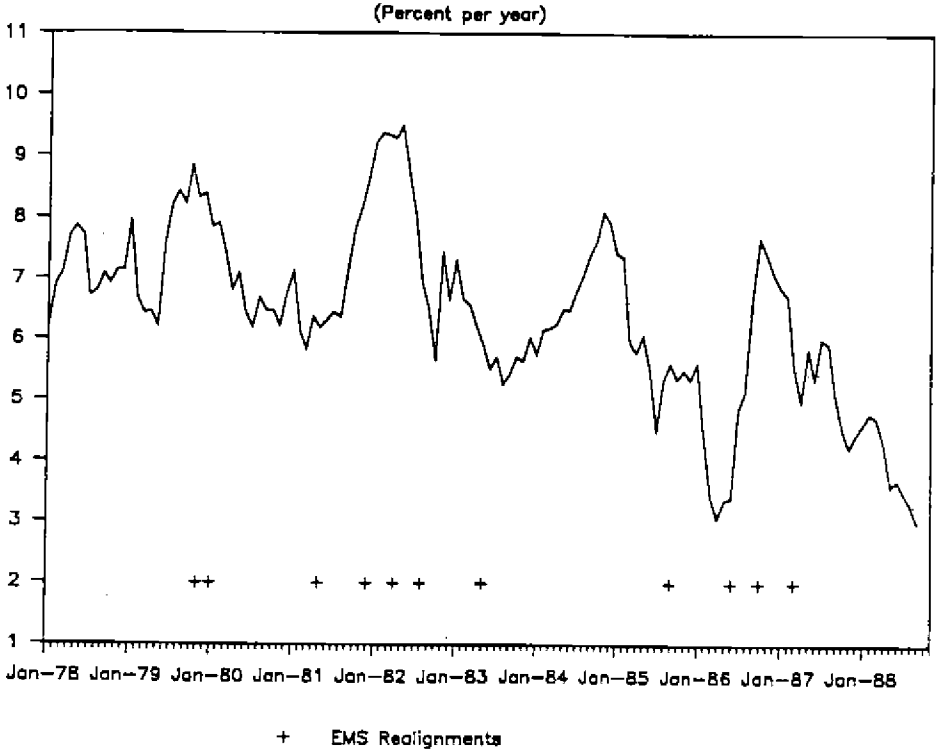
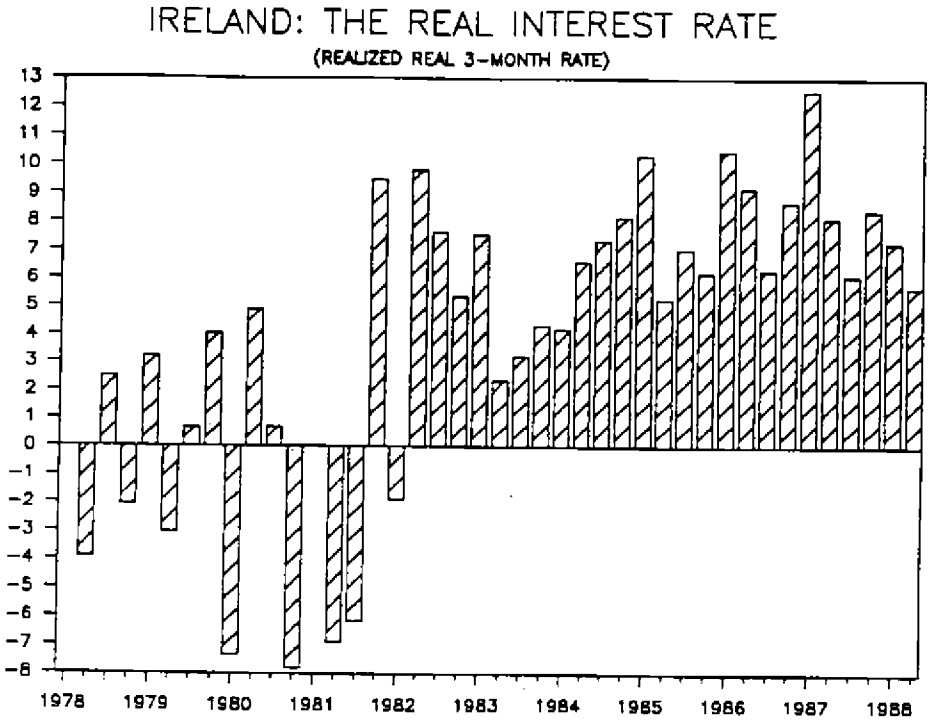


FIGURE 5


IRELAND: THE REAL INTEREST RATE
(REALIZED REAL 3-MONTH RATE)
13
12
11
10
9
8
7
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
−8
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988

• A fiscal policy of consistently reducing the primary deficit. In 1979-81 the primary budget deficit had averaged 7.2 percent. In 1982 there was a reduction to 6.2 percent, followed in 1983 and 1984 by a further reduction to only 1.9 percent. Fiscal action thus was dramatic.[8]

• Partly as a result of rising unemployment, partly as a result of wage agreements the increase in labor compensation slowed down from 18.1% in 1981 to only 14.4% in 1982.

An essential element in translating these factors into a reduction of long-term inflation expectations was the emerging political consensus on the need for fiscal correction following the inflation of 25% per year in late 1981. The fact that the new Fianna Fail government in March submitted broadly the same budget as the one on which the previous government had fallen substantiates this consensus.

The various pieces of the stabilization effort had strongly reinforcing features. Specifically tight monetary policy assured that credit demand would be financed abroad since the cost of borrowing abroad (including reduced exchange depreciation) now seemed lower than domestic loan rates. That in turn meant capital inflows and hence support for the exchange rate. With the exchange rate strongly supported by capital inflows, nominal interest rates could come down to a narrower differential.

The decline in nominal long-term interest rates can thus be interpreted as a response to the policy package and to the fact of a major reduction in inflation. A special role must go to the exchange rate policy. Not

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[8]The data are set out in the appendix.

taking advantage of an EMS realignment for devaluation in 1982 signified a shift from an accommodating exchange rate policy to a determined effort to squeeze inflation. At this stage the EMS was clearly becoming an instrument of disinflation. The resulting change in exchange rate expectations allowed a decline in short and long-term interest rates.

It is also interesting to note that in 1982 the term structure was basically flat. In terms of models of policy makers' reputation there is no suggestion (perhaps surprisingly) that confidence was stronger in the near term than in the long term. Interpreting the term structure in terms of risks of depreciation the premium above German rates was flat across maturities. We return to this point below.

2.3 Post-1982 Consolidation

Following the initial adjustment in interest rates, the period from 1982 to 1988 shows steady further decline in rates. Over this period inflation was brought down to less than 2 percent, the primary budget moved all the way to surplus and unemployment increased to above 18 percent. Much of the budget progress was concentrated in 1983-84 when the primary deficit was brought down to less than 2% of GDP. Inflation declined rapidly and already by 1984 had already fallen to the level of the average of the 12 European countries and then kept up with the pack.

One especially interesting episode in this period of consolidation is late 1986 and early 1987. In this period the pound sterling (not in the EMS) weakened against the EMS currencies. Sterling is of special interest to Ireland

because more than 40 percent of imports come from the UK and the UK market accounts for more than 30 percent of Ireland's exports. Starting in mid-1985 sterling started depreciating, reaching a cumulative peak of 38 percent (against the DM) in the first quarter of 1987. This depreciation caused a growing loss of competitiveness in Ireland and hence raised increasingly questions about the country's ability to hold on to the EMS central rate.

In the first 1986 realignment the Irish rate was not moved, but in the August 1986 realignment Ireland devalued by 8 percent. But this realignment was insufficient to allay the fears that further devaluation might ensue. These fears were reinforced by slippage on the budget correction. The long-term differential with Germany increased from 3 to 8 percent in this episode, highlighting the fear of depreciation. (See Figure 4) The government fought the deteriorating expectations, and the resulting capital outflows, with a sharp tightening of monetary conditions. The short-term interest rate increased from 10 percent to 14.6 percent. Pressure on the Irish pound stopped only when sterling stopped declining in early 1987.

By 1988 strengthening of fiscal contraction, continuing high real interest rates and the resulting high unemployment brought down inflation to German levels and short and long-term nominal interest rates had declined to less than 10 percent. There continued to be a differential relative to DM rates, but little question that the Irish pound, for the time being, was a harder currency.

Before asking questions about the sustainability of the program we turn to an international comparison. In the 1980s long-term interest rates

declined worldwide. It is therefore interesting to ask how the Irish experience compares with that of other countries. Specifically, how much of the decline in inflation and interest rates Ireland was due to worldwide factors and how much can be attributed to the stabilization?

3. INTERNATIONAL COMPARISONS

In this section we review the international disinflation experience and the pattern of declining long-term interest rates worldwide. The evidence is relevant in judging whether EMS membership played an obvious and major role in the Irish disinflation. To answer that question we consider evidence on three points:

- There was a worldwide disinflation and reduction in long-term interest rates in the 1980s and thus Ireland's case was by no means special.
- We consider evidence on whether EMS membership exerts a credibility bonus and thus reduces the costs of disinflation.
- It is also interesting to ask whether the Irish reduction in interest rates is unusual in view of the large accumulation of debt. To address that question we look at the role of inflation and fiscal factors as determinants of long-term interest rates in a cross section of countries.

3.1 Interest Rates and Disinflation

Ireland was not the only country to experience disinflation in the 1980s. On the contrary, every single OECD country went through the same shift in policies and enjoyed a reduction in inflation and an accompanying reduction in long-term interest rates.

3.1.1 International Disinflation and Interest Rate Reduction: Figure+ 6 shows the change in inflation and in long-term interest rates for 18 OECD countries. The common experience of disinflation challenges at a first level the view that EMS membership may have provided especially favorable disinflation conditions.

Figure 7 shows long-term interest rates in Germany, Denmark and Ireland and Table 3 supplements the information with data for Italy while also showing inflation rates.

Table 3 Long-term Interest Rates and Inflation
(Percent)

	Inflation[a]					Longterm Interest Rate				
	D	DK	IRL	IT	US	D	DK	IRL	IT	US
1981	4.0	10.1	17.4	18.5	9.7	10.4	19.3	17.3	20.6	13.9
1982	4.4	10.6	15.2	16.2	6.3	8.9	20.5	17.0	20.9	13.0
1983	3.3	7.6	10.4	15.3	3.3	7.9	14.4	13.9	18.0	10.8
1984	2.0	5.7	7.7	10.2	3.7	7.8	14.0	14.6	15.0	12.0
1985	2.2	5.3	5.0	8.8	3.1	6.9	11.6	12.7	14.3	10.8
1986	3.1	4.9	5.6	8.0	2.6	5.9	10.5	11.1	11.7	8.1
1987	2.1	5.0	2.7	5.6	3.3	5.8	11.9	11.3	11.3	8.7
1988[b]	1.8	4.3	2.3	4.6	3.3	6.5	10.5	9.5	12.1	9.3

[a]GDP deflator [b]Interest rates for May, inflation from the EC May-June forecast.
Source: Commission of the European Communities

The Figure and Table bring out the common experience of a sharp decline in interest rates in 1982-83.

3.1.2 The Andersen-Risager Model of Denmark: Andersen and Risager (1987, 1988) studied the decline in interest rates in Denmark using as their framework of analysis a game with incomplete information between policy makers and the

FIGURE 6

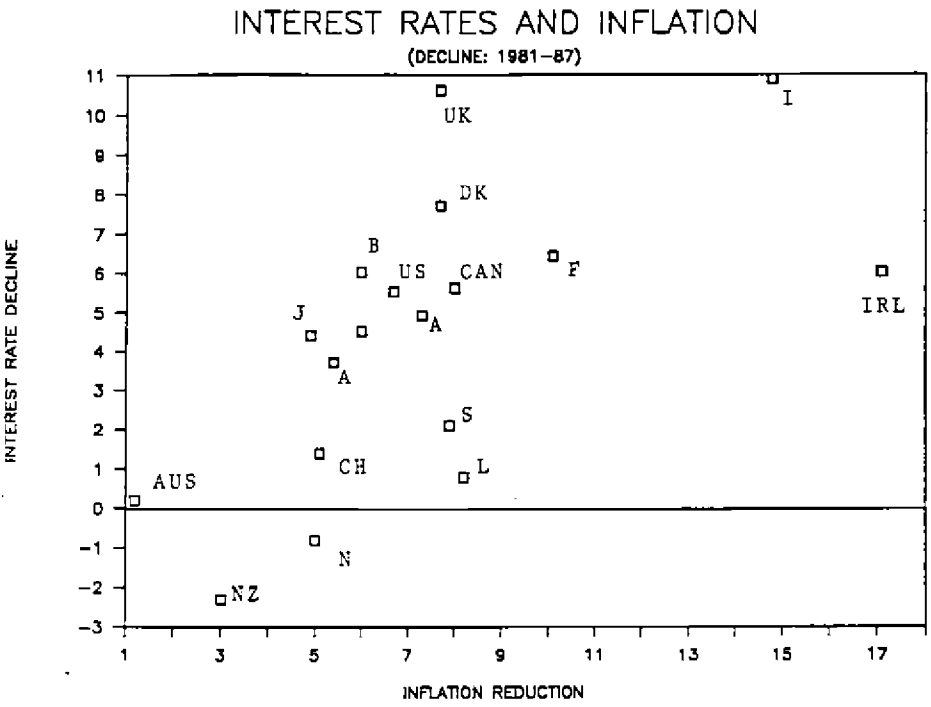
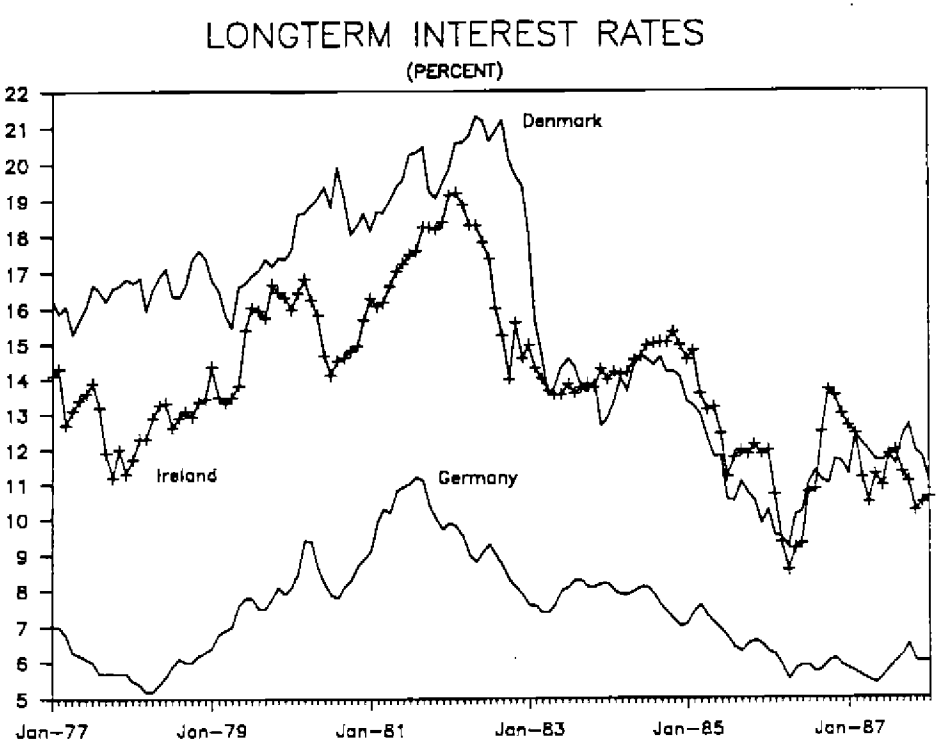

INTEREST RATES AND INFLATION
(DECLINE: 1981–87)
INTEREST RATE DECLINE
INFLATION REDUCTION
11
10
9
8
7
6
5
4
3
2
1
0
−1
−2
−3
1
3
5
7
9
11
13
15
17
UK
I
DK
B
US
CAN
F
IRL
J
A
A
S
CH
L
AUS
N
NZ

FIGURE 7


LONGTERM INTEREST RATES
(PERCENT)
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
Denmark
Ireland
Germany
Jan-77
Jan-79
Jan-81
Jan-83
Jan-85
Jan-87

public. The wage-setting public does not know at the outset whether the government is or is not the inflationist type in the way modelled by Barro and Gordon (1983). Upon adoption of exchange rate targets there is an immediate decline in short-term interest rates. But uncertainty about the government's true nature persists and is reflected in a positively sloped term structure which reflects the possibility of an ultimate devaluation.

In this analysis actual experience of reduced inflation and anti-inflation policy decisions and the fact of a fixed exchange rate, lead to a gradual reinforcement of the belief that this policy maker is not inflationist. As a result, over time the level of long-term interest rates further declines. The term structure premium vanishes as the public consolidates their belief that government does not harbor the intention of an ultimate inflation burst.

This model is used by Andersen and Risager to identify the key policy decisions that lead to a change in expectations and thus to a decline in long-term Danish interest rates and in the term structure premium. These events, involving wage agreements, fiscal agreements and exchange rate decisions not to devalue occur in the period from October 1982 to May 1983 as shown in Table 4. The events thus lag somewhat on the decline in Irish rates the first part of which had already occurred by fall of 1982. There is an interesting question to know whether Denmark drew on the Irish precedent.

Table 4 Interest Rates in Ireland and Denmark
(Percent)

	DENMARK		IRELAND		
	Short	Long	Short	1-Year	15-Years
1982:1	13.1	20.3	19.4	18.7	19.0
1982:2	18.9	21.1	20.0	18.4	18.4
1982:3	14.6	20.9	16.6	15.9	16.5
1982:4	18.8	19.7	14.6	14.7	14.7
1983:1	17.6	16.1	17.3	14.4	14.4
1983:2	9.6	14.1	14.9	13.4	13.6

Source: EC and Central Bank of Ireland

The incomplete information game may perhaps apply to Denmark (leaving open the question why the term structure premium reemerged strongly in 1983:2) but does not fit the case of Ireland where the term structure remained entirely flat if not even negatively sloped. This pattern is not consistent with a model where the policy maker is incompletely believed and it is suspected that there is some probability of a future devaluation. Of course, Irish interest rates remained high relative to German interest rates as already seen in Figure 8 and that means there was either expected depreciation or a risk premium, but this was uniform across maturities. If the policy game model were relevant we would see a long rate differential above the short differential, though declining. But Figure 9 shows the opposite pattern.

There is, of course, a more fundamental sense in which the policy game model does not apply to Ireland. As we will see below, Irish unemployment basically doubled under the stabilization plan. That is not consistent with the full-employment equilibrium model.

FIGURE 8

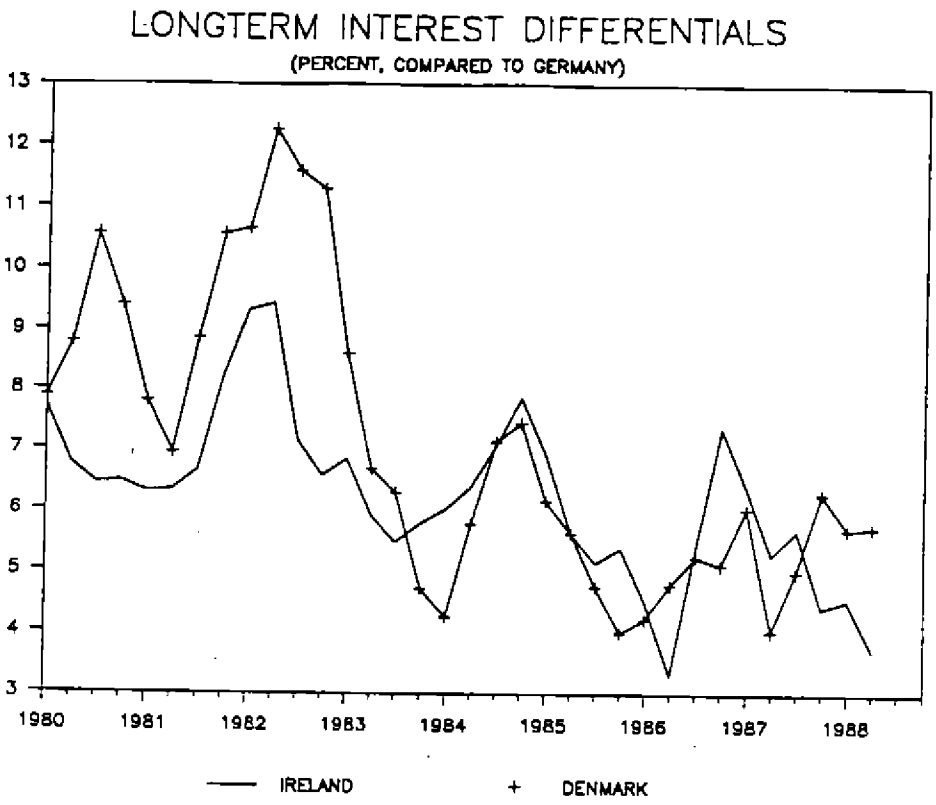
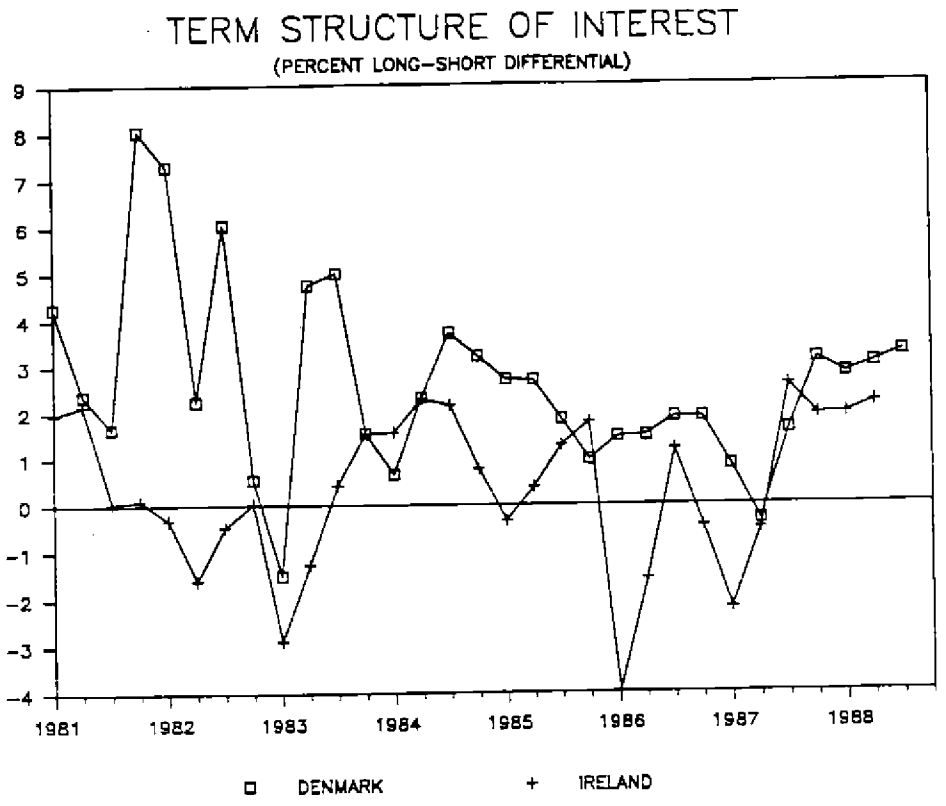

LONGTERM INTEREST DIFFERENTIALS
(PERCENT, COMPARED TO GERMANY)
13
12
11
10
9
8
7
6
5
4
3
1980
1981
1982
1983
1984
1985
1986
1987
1988
IRELAND
DENMARK

FIGURE 9


TERM STRUCTURE OF INTEREST
(PERCENT LONG-SHORT DIFFERENTIAL)
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
1981
1982
1983
1984
1985
1986
1987
1988
DENMARK
IRELAND

3.2 The Cost of Disinflation

Consider next the question whether EMS membership confers special disinflation advantages. That question has been addressed in an extensive literature on the EMS and especially by Ungerer et al (1986), Rogoff (1985), Collins (1988) and Guitian et al (1988). Both Rogoff and Collins emphasize that inflation convergence did not occur in the first few years of the EMS; indeed, a tendency toward converges only starts after 1982. Moreover, as already noted above, most industrialized countries had reduced by 1988 inflation rates to below 5 percent, independent of EMS membership. Ungerer et al (1986) did find a significant EMS effect in estimated inflation equations, but their findings are rightly questioned by Collins.

Rather than considering the question of inflation convergence and the possibility of an EMS-induced break in the inflation performance there is an alternative approach that focuses on sacrifice ratios. The sacrifice ratio--defined as the number of extra percent unemployment years per percent reduction in inflation-- measures the cost of disinflation. If EMS membership conveys special disinflation advantages we would expect, other things equal, a lower sacrifice ratio for EMS members. Table 5 shows the sacrifice ratios for all OECD members (except Turkey and Iceland) for the disinflation experience of 1981-1988.

Table 5 Sacrifice Ratio of Disinflation: 1981-88

Country	Sacrifice Ratio	Country	Sacrifice Ratio
Australia	7.65	France*	1.41
Netherlands*	5.03	Italy*	1.02
Germany*	4.17	Switzerland	0.81
Spain	3.70	Norway	0.68
Ireland*	2.41	Japan	0.66
Austria	2.29	Luxemburg*	0.52
Canada	2.18	Portugal	0.44
Greece	2.08	Sweden	0.27
Belgium*	1.98	Finland	0.25
UK	1.54	US	-0.09
New Zealand	1.53	Denmark*	-0.11

*EMS members
Note: The sacrifice ratio is calculated as the ratio of the cumulative unemployment above the 1981 level divided by the disinflation between 1981 and 1988, using consumer price inflation. All data from OECD Economic Outlook.

It is immediately obvious that EMS membership does not make for small sacrifice ratios and a regression (not reported here) bears out that fact. It is striking that Germany, whose anti-inflation reputation is supposed to give the EMS the credibility bonus has one of the highest sacrifice ratios. This evidence should firmly lay to rest the view that EMS membership can make disinflation easier; it may make it more credible, but even so it certainly does not make it cheaper in terms of lost output.

3.3 Convergence

Rather than focussing on disinflation we can also look at the prospects of inflation differentials. If we are willing to assume that long-term real interest rates are equalized across countries then nominal interest differentials on long-term securities represent trend differentials in

inflation. Alternatively, without any assumption about real interest rates, long-term interest differentials represent trend bilateral exchange rate changes. Table 6 shows the average and standard deviation of bilateral long-term interest differentials of various countries with Germany.

Table 6 Interest Differentials With Germany

	1976-1979:1		1979:2-1982:4		1983-1988:1		1988[a]
	Avg.	Stdev.	Avg.	Stdev.	Avg.	Stdev.	Avg.
Belgium	2.2	0.72	3.47	0.95	3.12	1.11	1.8
Denmark	7.3	1.70	9.42	1.60	5.62	1.16	4.0
France	2.6	1.10	4.90	1.66	4.11	1.15	2.9
Ireland	7.8	1.14	7.39	1.06	5.78	1.06	3.0
Italy	7.3	1.50	9.23	2.30	6.28	2.35	5.6
Netherlands	1.7	0.50	1.32	0.32	0.54	0.18	0.1
UK	6.6	1.20	4.66	0.94	3.44	0.58	3.2
US	1.3	0.69	3.19	1.03	3.18	1.09	2.8

[a]August

It is apparent that differentials between EMS members and Germany are neither smaller nor more stable than those between nonmembers and Germany. In fact, current inflation differentials have narrowed more than long-term interest differentials. This suggests that trend depreciation of exchange rates is expected to remain a characteristic of the EMS, except between Germany and the Netherlands.

3.5 Determinants of Long-term Interest Rates:

The literature on long-term interest rates has been relatively unsuccessful in explaining the large changes in the 1980s in individual countries. We use international cross section evidence to identify the key

determinants of long-term interest rates. In particular we are interested to separate out the role of inflation, of fiscal variables and once again any special EMS effects.

In country studies there may be some scope to use survey data and budget forecasts as explanatory variables for (forward-looking) long-term interest rates, but there is little hope to do so for a large group of countries. In fact, even consistency of the fiscal data may already be an issue. We therefore concentrate on current actual variables. Our cross section covers the main industrialized countries with annual data for the time period 1974 to 1987.

The basic question is what role inflation and fiscal variables play in determining an individual country's long-term interest rate. We also want to know whether the EMS plays a special role in the determination of long-term interest rates of partner countries. The basic hypothesis is that a country's long-term interest rate, given external interest rates, is higher the higher is the rate of inflation. If fiscal variables are to play a role we would expect a non-interest surplus to be an indication of stabilization and reduced future inflation. As such it should imply a lower long-term interest rate. Finally, if fears of Sargent-Wallace inflationary debt liquidation are a concern we expect a higher debt/GNP ratio to imply a higher expected rate of inflation and hence a higher interest rate.

In Table 7 we use a pooled annual data of industrialized countries for the period 1974-87 to uncover the determinants of the large shift in long-term interest rates among industrialized countries.

Table 7 The Determinants of Longterm Interest Rates: 1974-1987
(Rate = a_o + a_1 Debt + a_2 Budget + a_3 Inf + a_4 GER + a_5 EMS + a_6*INFDIFF)

	a_o	a_1	a_2	a_3	a_4	a_5	a_6	R^2
				15 COUNTRIES[a]				
1.	7.07	0.017	-0.19	0.37				0.42
	(19.5)	(3.28)	(-2.71)	(10.7)				
2.	6.80	0.013	-0.22	0.33	0.13			0.44
	(18.4)	(2.47)	(-3.10)	(9.21)	(2.83)			
3.	6.51	0.005	-0.22	0.37	0.07	1.77		0.50
	(18.3)	(0.91)	(-3.39)	(10.5)	(1.5)	(4.83)		
4.	7.6	0.01	-0.20	0.24			0.21	0.45
	(19.7)	(2.1)	(-2.89)	(4.78)			(3.38)	
				11 EUROPEAN COUNTRIES[b]				
5.	7.1	0.013	-0.18	0.40				0.50
	(17.3)	(2.52)	(-2.40)	(10.3)				
6.	6.31	0.011	-0.20	0.35	0.18			0.52
	(11.8)	(2.22)	(-2.69)	(7.79)	(2.24)			
7.	6.93	0.005	-0.27		0.26		0.42	0.55
	(13.6)	(0.94)	(-3.82)		(3.58)		(8.71)	
8.	5.97	-0.006	-0.28		0.29	2.13	0.46	0.64
	(12.5)	(-1.25)	(-4.44)		(4.51)	(6.36)	(10.45)	

Note: [a]US, Japan, Canada, Australia, Austria, Belgium, Denmark, Germany, France, Netherlands, Luxemburg, Italy, Ireland, UK, Sweden, Norway [b]Same as a except for US, Japan, Canada, and Australia.
The following variables were used: Rate: longterm government bond yield; Debt: EC and OECD estimate of government net debt; Budget: EC and OECD estimates of the primary budget surplus; INF: the annual rate of CPI inflation; GER: the German longterm interest rate; EMS: a membership dummy which is 1 since 1979; INFDIFF= differential of inflation with Germany.

Equations 1. and 5. explain long-term interest rates by debt ratios, the non-interest budget and the inflation rate. Each of the explanatory

variables has the expected sign and is significant. Note that the coefficient of inflation is significantly different from unity. This is not surprising because current inflation is certainly not a good indication (on a one-for-one basis) of future inflation. In addition, of course, there is no presumption of a constant real interest rate. A further interesting point is the role of the debt ratio. Net public debt (as a fraction of GDP) has a significant positive effect on long-term interest rates. But the effect is quantitatively small in that an extra 60 percent of GDP in debt raises the long-term rate by only a percentage point.

A difficulty with equations 1. and 5. is that they concentrate exclusively on national determinants and do not allow for a common world capital market or constraints from a monetary regime like the EMS. We therefore now turn to these factors. In our discussion we concentrate on the regressions for European countries.

Equation 6. introduces the German long-term interest rate (for the other European countries) as an additional explanatory variable. This procedure assumes that Germany sets exogenously its policies and long-term rate, but that the rest of Europe is influenced by the German rate. We observe that the German rate is, indeed, significant. Higher German rates raise interest rates in other European countries. At the same time the debt variable becomes insignificant.

Further regressions show the influence of the inflation differential between a country and Germany (INFDIFF). This variable, too, is highly significant and the size of its coefficients is large and thus helps account for the large differences in long-term interest rates. Finally we look for an

EMS effect. Interestingly (and contrary to expectations if the EMS is seen as a stability Club) the EMS coefficient is positive. EMS partners, other things equal, have higher nominal interest rates. The proper interpretation is that the EMS dummy is phased in 1979, exactly at the time long-term interest rates become very high. It thus helps explain the high interest rate period rather than tracking special membership effects.[9]

A particularly interesting finding is the absence (except in 1., 5. and 6.) of the Sargent-Wallace effect. Debt ratios per se simply do not appear as determinants of long-term interest rates. This is a striking finding because it runs so much counter to the belief that extremely high debt ratios (as that of Ireland, for example) should be predicting financial trouble. Contrary to that notion, the equations support the view that current flows variables such as the non-interest budget and current inflation contain more information than the stock position. This suggests that asset markets do not see high debt stocks as predicting special taxation of assets or inflation as a risk.

3.6 Summary

In this section we have looked at international evidence of special EMS effects. The hypothesis that EMS membership could have helped achieve disinflation in Ireland is attractive in view of game-theoretic models that emphasize the special role of precommitment and reputation. Taking part in a hard-currency club, in terms of these models, would be expected to yield a

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[9]The regressions use domestic rather than offshore interest rate. This makes the neglect of tax variables in our analysis a potentially serious shortcoming.

disinflation bonus. The evidence we have reviewed here does not support the view that EMS membership yielded the partners extra facility in reducing inflation or translated into an expectation of more substantial disinflation. In fact, the evidence points if anything in the other direction. The most striking evidence to the contrary is, of course, the very high German sacrifice ratio.

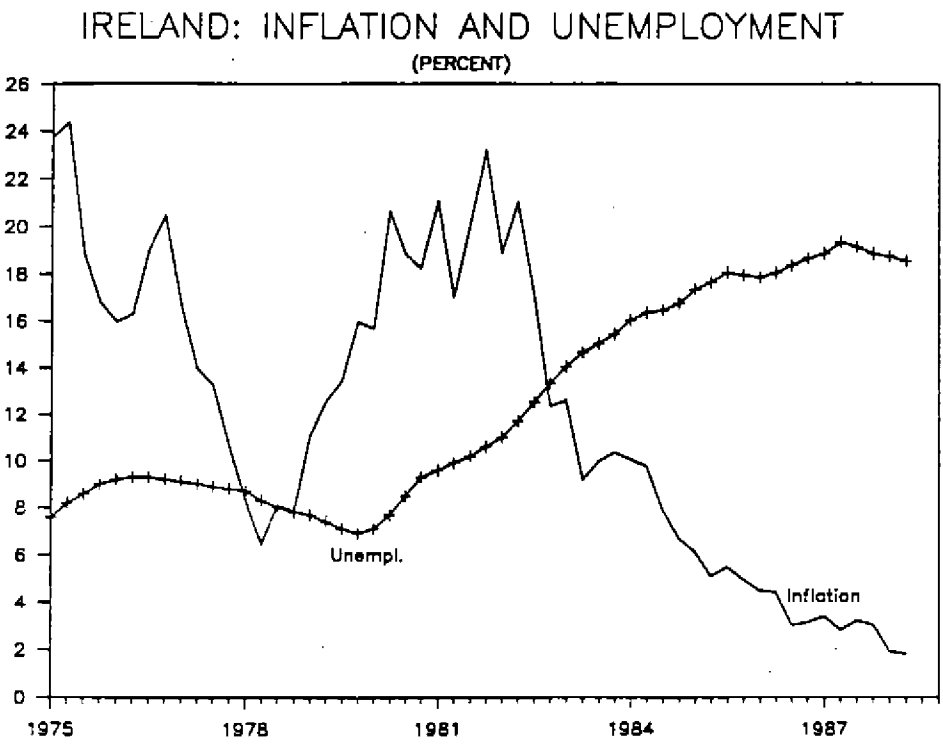
We now turn to a discussion of the costs of stabilization in Ireland. We have already seen in Table 5 above that Ireland had one of the highest sacrifice ratios. Our interest is now to identify why unemployment increased so much.

4. FAILED STABILIZATION ?

Ireland has stopped inflation and the primary budget today is in surplus. In the near-term a major outbreak of inflation and depreciation is entirely implausible. Inflation stabilization thus is a fact. But so are two other points: First, as Figure 10 and Table 8 show, stabilization has come at the cost of an extremely high level of unemployment and in that sense stabilization is not complete and can even be said to have failed. Second, the debt ratio has risen sharply and continues to rise. Ireland has the highest debt/GDP ratio among industrialized countries, far higher than Italy and Belgium, and perhaps with Israel the highest in the world. In this respect, too, stabilization can be said to have failed.

The 1987 Annual Report of the EC paints a bleak picture of Ireland and shows how difficult the situation is (European Economy July 1987):

FIGURE 10


IRELAND: INFLATION AND UNEMPLOYMENT
(PERCENT)
26
24
22
20
18
16
14
12
10
8
6
4
2
0
1975
1978
1981
1984
1987
Unempl.
Inflation

> "Only limited progress has been made so far in halting the accumulation of large Exchequer Deficits; the resulting high levels of taxation, crowding-out pressures and crushing debt interest bill (nearly half in respect to foreign debt) have created a difficult environment for investment and growth. Employment has only recently begun to stabilize after a prolonged fall. Unemployment has climbed to the unacceptably high average of 18.75 well above the Community average, but the figure would be much larger had not emigration moved to high new levels recently, thereby offsetting the strong underlying growth in the labor supply."

The triumph of low inflation has thus come at the cost (perhaps inevitable) of extraordinary high unemployment, massive emigration and a precarious debt overhang.[10]

Table 8 Irish Macroeconomic Variables

	Debt/GDP	Budget Deficit[a] Total	Operat.[b]	Inflation	Unemployment	Investment[a]
1980-82	92.6	13.3	9.9	18.0	9.5	28.0
1983-85	117.3	10.9	6.2	7.2	15.6	22.6
1986	139.0	10.9	5.6	3.6	17.4	18.9
1987	138.6	8.5	2.5	3.0	18.7	17.2
1988[c]	141.3	6.7	0.7	2.5	19.5	n.a.

Notes: [a] Percent of GDP, [b] The operational budget deficit is the total deficit less real interest payments. [c] Estimate
Source: Commission of the European Communities and OECD

[10] The OECD reports the following data on the labour force (in 000s per year):

	Natural Increase	Migration	Participation
1971-81	13.9	5.2	-3.4
1981-86	22.8	-12.7	-4.1

Source: OECD (1987) Table 13.
Emigration, rather than unemployment, thus absorbed more than half the increase in the potential labour force in the 1980s!

Two questions can be asked at this stage. One is to know why stabilization led to high unemployment and escalating debt ratios. The other is to know whether the Irish debt situation is unsustainable in some well-defined sense. If so, what are the policy options?

4.1 What Went Wrong?

Several factors come together in explaining the extraordinarily poor performance of the Irish economy. The first is that fiscal contraction per se reduces real aggregate demand and thus reduces output and employment. The textbook says that expenditure reducing policies must be accompanied by expenditure switching policies if full employment is to be maintained. These have, not, in fact been used. On the contrary, the real exchange rate has been allowed to appreciate rather than depreciate and the real interest rate has increased sharply. Thus increased net exports due to stronger competitiveness or higher investment were not brought forth to make up the slack.

Table 9 shows hourly compensation (measured in $US) in Ireland as well as the average wage (using Irish export shares) of Ireland's trading partners.

Table 9 Relative Wages

	Ireland $US	Trading Partners $US	Ireland's Relative Wage (1982=100)
1978	3.87	7.94	85.0
1980	5.88	10.03	102.1
1982	5.65	9.85	100.0
1985	5.80	10.05	100.5
1986	7.80	11.87	114.5
1987	9.08	13.51	117.0

Source: US Department of Labor

Table 9 shows a 17 percent rise the relative labor cost in Ireland since the stabilization effort began in 1982. Since 1978 the real appreciation on this measure amounts to 37 percent! There is some question on how to measure competitiveness and it is clear that the result would differ quantitatively from this estimate. But it is doubtful that an altogether different picture would emerge.[11]

Taking as a fact that Ireland's competitiveness has sharply deteriorated, there is little surprise that there has been no "crowding in" following the budget cuts; on the contrary the overvaluation policy, while contributing to disinflation has made fiscal adjustments extra expensive.

It is interesting to compare Ireland to Latin America. Just like in Latin America, initially public finance went out of control and exchange rate overvaluation and the budget were financed by massive external borrowing. The main difference between the two experiences is that Latin America can no longer borrow and as a result, under IMF programs, has undergone budget cutting and real depreciation with high inflation. Ireland continues to enjoy external financing and therefore has been able to indulge a low inflation experience. But this has come at the cost of dramatic unemployment because of a lack of crowding in.

Monetary policy has worked similarly to avoid crowding in. Table 10 shows that the realized real interest rate increased sharply in the 1980s compared

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[11] The main problem with our measure is the neglect of productivity growth. We implicitly assume that productivity growth is roughly the same for Ireland and her trading partners. The OECD Historical Statistics does not report productivity growth for Ireland. The weights for the competitiveness measure come from OECD Economic Surveys: Ireland 1987-88, p.92.

to the 1970s. Part of this increase reflects higher worldwide interest rates. But in part the higher real interest rate is a counterpart of the hard currency play which continues to command less than full credibility.

Table 10 Growth, Seignoriage and Real Interest
(Percent per year)

	1970-81	1982-87
Real Interest (% p.a.)	-2.9	6.7
Real GNP Growth	3.8	-0.1
Seignoriage (% of GNP)	1.95	0.73

Source: OECD and estimate by the author

Huhne (1988), commenting on the French experiment of developing a hard currency, notes:

> Becoming a hard currency country may be easier than making the markets believe that you are one".

Irish interest rates, even with a fixed exchange rate policy and near-German levels of inflation continue to exceed those in Germany. It is noteworthy that the realized real interest rate always turns out positive because the government in fact stuck to a no-depreciation policy. But if high nominal interest rates were a reflection of anticipated depreciation one would expect less of a decline in investment since presumably, in that case, ex ante real interest rates were not positive and high. In fact, however, investment declined sharply. The experience with investment, just as the unemployment experience,

puts in question simplistic versions of the new classical mechanism of credible stabilization.

The exceptionally high real interest rate has had an immediate effect on budget dynamics in a way suggested by Sargent and Wallace (1981). With a positive and high real interest rate (relative to the growth rate of income) the ratio of debt to GDP rises. The recessionary monetary-fiscal and exchange rate mix has pushed down the growth rate of income and pushed up the real interest rate. As a result the debt ratio is rising very sharply.

A further factor that deserves attention is seigniorage. In a strongly growing and moderately inflating economy the government can finance part of the budget deficit by money creation. The shift to a low inflation policy sacrifices these seigniorage revenues. To the extent that slow growth is a byproduct, this further reduces the scope for money creation. In Ireland, as Table 10 above shows, the reduction in seigniorage is more than a percent of GDP and thus represents a significant component of the deficit financing problem.

We turn next to the question whether stabilization can be sustained.

4.2 Is the Irish Fiscal Situation Unsustainable?

The Sargent-Wallace (1981) model predicts that a shift toward tight money, given the non-interest budget, will lead to higher real interest rates and accelerated debt accumulation.[12] That process continues until debt and debt service become so large that the government must resort to an inflation tax to service the rising interest payments. We saw above that empirically this debt

[12]See, too, the discussion in Spaventa (1987).

effect is not discernible in regression equations. The first question to ask, therefore, is whether the Irish debt accumulation (and that of other high debtors such as Belgium or Italy) is simply not explosive.

The conventional debt-dynamics model shows that the increase in the ratio of debt to GDP, d, is given by two determinants:

- the primary budget deficit, and
- the difference between real interest and real income growth:

$$\dot{d} = (r - y)d + \alpha \qquad (5)$$

where
- d is the ratio of debt to GNP
- r is the effective real interest rate of debt
- y is the growth rate of GNP
- α is the primary or non-interest budget deficit as % of GNP.

Table 11 shows the evolution of the debt ratio, the composition of debt between internal and foreign currency debt as well as debt service. It is apparent that the debt ratio has been rising very sharply. Part of the reason was a primary deficit, part the high real interest rate relative to low growth of output.

Table 11 Ireland: Government Debt
(% GNP)

	Debt/GDP			Debt Service/GDP	
	Total	Domestic	Foreign	Domestic	Foreign
1971	64.8	59.5	5.3		
1975	72.3	57.4	14.9		
1980	87.7	63.2	24.5		
1982	96.3	51.6	45.0	5.9	4.1
1987	136.6	80.7	56.0	7.9	4.1
1988	141.3	n.a.	n.a.	8.3	3.8

Source: Central Bank of Ireland

The mid-1988 forecast for Ireland's budget shows a surplus for the primary balance. Other things equal the budget improvement (if sustained) stabilizes or even reduces the debt-income ratio in the years ahead. But real interest rates continue to be very high. In part this reflects less than full credibility which leaves a residual differential, even if inflation is down to the German level.

In judging whether the debt dynamics is stable at the current levels of the parameters one has to consider the effective real interest rate paid on the debt. This is the weighted average of realized after-tax real interest rates on the domestic and (by differing denomination) foreign debt. The complete ingredients for that calculation are not available, but Table A-I in the Appendix sets out some of the elements. It appears that a fair amount of the debt was issued as long-term bonds in the period of high interest rates. Giavazzi and Pagano (1988) estimate that the average maturity of the Irish domestic debt is 4-

8 years. Thus at least for the present realized real interest rates are very high.

There is also a question whether foreign debt is tax exempt and for that reason has a significantly higher cost. In sum, there does not seem to be a sensible way to judge whether the parameters imply a stable debt ratio, one that further rises or that declines very moderately. But it is entirely clear that a period of high real interest rates in the world economy would make Irish debt entirely unsustainable. Since such a scenario has a significant possibility (as does the low growth outlook) any discussion of sustainability must recognize this possibility.

4.3 Policy Options

Suppose that one concluded that Irish debt is unsustainable, what are the options that have been suggested? It is easy to identify measures which would not solve the problem:

• Taxation. Ireland's taxation is nothing short of oppressive. As Table 12 shows, marginal rates are high as is the economy-wide burden. Raising marginal income tax rates provides a powerful disincentive and increased commodity taxation leads to reduced living standards that encourage emigration of the most skilled workers.

Table 12 Comparative Taxation of Labor Use: 1983
(Percent)

	Total Marginal and Averages Tax Rates on Labor: Single Worker		Married with 2 Children		Total Taxes[b] (% of GDP)
	Marginal	Average	Marginal	Average	
Ireland	70.2	51.7	63.8	44.9	39.0
OECD[a]	58.0	43.3	55.8	39.0	37.0

[a]unweighted average, [b]1984
Source: OECD

The average level of taxation in Ireland is not significantly higher than the average for all OECD countries. The major problem is that the tax structure is very inefficient, with large segments of the potential tax base almost completely excluded from taxation. As a result labor and consumption are the main targets of taxation, with taxation of corporations, capital including land or wealth practically non-existent.

Among the feasible options that have been recommended are the following:

• Expenditure cuts are, of course, an option. They are both difficult and desirable.

• The OECD has made a strong case for broadening the tax base as the chief direction of fiscal reform. Taxation of corporations, as noted, remains minimal and exemptions from the VAT remain plentiful. The introduction of a withholding tax (with foreign credit) on the outstanding external debt would also yield some revenue.

• A once-and-for-all capital levy on financial assets as well as real assets including land could raise revenue that could be devoted to a reduction of

the level of indebtedness. Alternatively, a recurrent wealth tax could finance part of the deficit.

• Supply-side policies are emphasized by many observers as absolutely central. Unless Ireland becomes far more competitive internationally there is no chance to grow out of debt. And if Ireland does not very rapidly come out of the debt trap the real economy will continue to deteriorate. The gain in competitiveness requires a major reduction in the relative wage in Ireland and that means devaluation with incomes policy.

Depreciation would not help reduce debt burdens because half the debt is denominated in foreign currency. But for growth, a much lower real value of the punt is essential. If devaluation is accompanied by a forceful incomes policy it can also help reduce the risk premium.

• Another direction of change, perhaps in combination with a capital levy, is a restructuring of the debt or even of the monetary system. At present Ireland pays a confidence tax in that the yield on Irish assets exceeds that in Germany by significantly more than the interest differential. This implies real interest rates are higher than they would be in the absence of currency confidence problems.

The yield differential on long-term Irish dollar bonds relative to US government debt in the period from May 1986 to October averaged 115 basis points. Suppose that is the risk premium for Irish "political risk". In addition the local currency debt, nearly half of the total debt, carries a "currency risk premium" of another 2 percentage points (relative to Germany). This excess risk carries a major burden in the budget since it amounts to a financing requirement

of fully 1.5 percent of GDP per year. This cost can be saved by refunding the debt into a portfolio of DM, dollar and Yen debt.

Of course, a decision to move all the way to as debt denominated in foreign currency implies that inflationary liquidation and capital levies may become much harder. It is therefore a step which would only be appropriate in the context of a major fiscal reform, that assures that the current doubts about the budget process can be largely removed.

An alternative to refunding of the debt would be a return to an inflation policy which generates seigniorage and affords (in a transition phase) a moderate liquidation of the long-term domestic currency debt. Such an inflation policy is, however, increasingly difficult to conceive of as integration in the Common Market is being pushed ahead in the direction of 1992. Thus the country should might go the other way adopt the DMark as its currency and enjoy the reduction in the currency risk premium on its debt. The intermediate position is doubly expensive because it means foregoing seigniorage and at the same time incurring the cost of a risk premium.

5. CONCLUDING REMARKS

Ireland faces a typical post-stabilization problem: high real interest rates, depressed activity and a rising debt ratio. The critical failure in the stabilization occurred in the labor market where lack of a gain in competitiveness stood in the way of crowding in. As a result the gradualist attempt at stabilization cannot succeed: even if inflation can be kept low and the rise in the debt ratio brought to a standstill, the program is a failure

because the extremely high and inefficient levels of taxation make Ireland a thoroughly unattractive place for production. In the perspective of a far more competitive Europe after 1992 shopping for attractive production locations will become far more pervasive than it has been in the past and Ireland is bound to appear unattractive.

Ireland's problems are worse than those of most countries. There is no simple clean way out because the debt is so extremely large and the tax burden is already enough to drive people into emigration. In the 1920s one would have said this is the case where a capital levy should restore the normal functioning of the economy. Unfortunately moderate inflation is not enough and outright levies are unpopular, even if they may turn out to be the only solution.

The other conclusion we draw deals more broadly with inflation stabilization. A policy that uses a fixed exchange rate to disinflate and that requires at the same time fiscal consolidation can easily run into difficulties. The fixed exchange rate policy stands in the way of a gain in competitiveness and in fact easily becomes a policy of overvaluation. The overvalued currency then needs to be defended by high real interest rates. The combination of budget cutting, high real interest rates and an overly strong currency creates unemployment on each score. There is no offsetting crowding-in mechanism unless money wages are strongly flexible downward or productivity growth is high. Neither was the case in Ireland and hence the country is locked into a high unemployment and high debt trap.

EMS membership has been portrayed as an important means of reducing the costs of disinflation. We have seen that there is no evidence of such a

credibility bonus from EMS membership. Several of the EMS members, including in particular Germany, have the highest sacrifice ratios among the OECD members. There is some indication of credibility effects in asset markets: long-term interest rates have followed current inflation to a very significant extent, even though they have not gone all the way. But Irish market unemployment has increased sharply and remains stubbornly high: half the inflow into the labor force emigrates and the other half becomes unemployed! That experience is sharply at odds with the new classical model of the labor market and there is no plausible way in which these events can be interpreted as arising from confusions about government policy. The lesson for stabilization policy is clearly that governments must pay far more attention to the need for crowding-in through increased competitiveness. A major real depreciation at the outset of the program would provide the required offset to budget cutting.

Appendix I

Table A-I Ireland: Key Economic Indicators
(Annual Average)

	Growth (%) GDP	GNP	Unemplm't. (%)	Inflation (%)	Investment (% of GDP)	Current Acc't. (% of GDP)
1970-80	4.5	3.8	7.3	14.0	26.9	-6.2
1981	3.4	2.6	10.2	17.4	28.4	-14.8
1982	2.3	-0.7	12.3	15.2	26.5	-10.6
1983	-0.6	-2.0	14.9	10.4	23.3	-6.9
1984	3.2	0.8	16.6	7.7	21.7	-6.0
1985	1.1	-0.8	17.9	5.0	20.4	-3.8
1986	-0.3	-1.6	18.2	5.6	18.7	-2.4
1987	4.1	3.1	19.2	2.5	17.5	1.3
1981-87	1.9	0.2	15.6	9.1	22.4	-6.2
1988*	2.9	0.3	18.7	2.3	17.2	2.6

Note: *Mid-1988 Forecast
Source: EC and OECD

Table A-I Ireland: Key Debt and Budget Indicators
(Annual Average)

	Budget (% of GDP) Primary	Real Inter.	Debt Ratio (% of GNP)	Nominal GNP (%)	Effective Interest (%)[a]
1970-80	-5.9	2.1	72.4	18.5	n.a.
1981	- 7.3	3.8	89.8	20.6	9.9
1982	-6.2	4.0	95.8	14.7	10.8
1983	-4.1	4.3	107.4	8.4	11.2
1984	-1.9	4.8	113.4	8.6	10.6
1985	-2.5	5.1	117.9	4.5	11.0
1986	-2.8	5.3	133.2	5.8	10.0
1987	-1.4	6.0	136.1	7.1	8.6
1981-87	-3.7	4.8	113.4	10.0	10.3
1988*	1.4	6.1	139.8	4.0	8.8

[a] Mid 1988 forecast, [b]Ratio of interest to midyear debt.
Source: EC and OECD and Central Bank of Ireland

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