What central banks have learned: lessons from pre-EMU Europe [*]

AERDT C.F.J. HOUBEN

1. Introduction

Over the past quarter century, the art of central banking has been characterised by a steep learning curve. Marked differences in the design of monetary policy frameworks across countries have created a fertile ground from which to draw lessons on what central banks should, and should not, be doing. This is particularly true in the European Union, where until recently the fifteen national central banks pursued different targets within different policy frameworks, and with significant differences in terms of success.[1] Some of the lessons are relatively clear-cut and have been anchored in the institutional framework governing the novel European Central Bank.[2] These include making stable prices a prime objective for the central bank, granting it independence to pursue this aim, making it accountable for its performance under this objective, and ensuring that its instruments are not hindered by fiscal profligacy. But, although not always as self-evident, the wide-ranging European experiences offer further lessons on the alternative policy strategies that can be pursued within such a framework.

□ De Nederlandsche Bank, Monetary and Economic Policy Department, Amsterdam (The Netherlands).

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[1] This article draws heavily on Houben (2000), who elaborates on the different policy frameworks and targets, and spells out the individual country data that underlie the aggregate tables in this article.

[2] See de Haan (1997) and Bini Smaghi (1998); Mishkin (2000) advocates similar elements in an institutional scorecard for the Federal Reserve.

In this light, this article reviews the intentions and outturns of central bank policies in Europe from the collapse of the Bretton Woods system of fixed exchange rates in 1973 until the birth of the euro in 1999. More specifically, it seeks to establish what these central banks learned during the periods in which they pursued money targets, exchange rate targets and inflation targets. Thus, rather than approach the monetary strategy choice from the angle of a particular strategy, an individual country or a specific decade – as in for instance Bernanke *et al*. (1999), Mahadevi and Sterne (2000), Ungerer *et al*. (1990) and Issing (1997) – the focus here is on the common lessons that can be derived from the drawn out European experience. In this context, the paper also discusses the extent to which these lessons apparently found their way into the monetary policy strategy adopted by the European Central Bank at the start of EMU.

2. The lessons of money targetry

Stretched across eight countries and more than two decades, the European experience with money targetry is broad-based. Against the background of a rising inflationary momentum and based on the creed that inflation is ultimately always a monetary phenomenon, Germany had been the first country (in late 1974) to publicly announce a money growth target. The main considerations driving the adoption of this new strategy were the desire to explicitly limit the scope for price increases and to establish a communicable, controllable and readily monitorable target for monetary policy. Within Europe, the United Kingdom (early 1976), France (1976), the Netherlands (early 1977), Spain (1978), Greece (early 1983), Italy (late 1984) and eventually Portugal (1987) followed suit. While these money-based strategies were all shaped differently (in terms of the money aggregate being targeted; the specification of the target as a point, range or ceiling; and the target time horizon), the European record nonetheless provides a number of general insights into the efficacy of this strategy.

First, the overall marksmanship record is poor: on average, targets were met in less than one third of the cases (see Table 1). Even

TABLE 1

MONEY TARGETING MARKSMANSHIP IN EUROPE, 1975-1998

Country	Period[1]	Average deviation[2]	Average absolute deviation[3]	Average width of target range[4]	Target achieved[5]
Germany[6]	1975-98	0.98	1.70	2.53	42
CBM	1975-87	0.92	1.72	2.67	38
M3	1988-98	1.05	1.69	2.40	45
France	1977-98	–1.00	2.53	1.88	22
M2	1977-85, 1987-90	–0.11	1.60	1.71	23
M3	1986-87, 1991-98	–2.16	3.74	2.10	20
UK	1976/77-1991/92	2.93	3.34	4.00	42
£ M3	1976/77-1986/87	4.24	4.74	4.00	25
M1	1982/83-1983/84	3.70	3.70	4.00	0
PSL2	1982/83-1983/84	2.60	2.60	4.00	50
M0	1984/85-1991/92	0.86	1.34	4.00	75
Netherlands[7] Liquidity ratio	1977-80	0.45	0.45	..	0
Italy (M2)	1984-98	0.81	1.87	2.78	33
Spain	1978-94	2.00	2.80	3.59	47
M3	1978-83	0.57	1.40	4.17	83
ALP	1984-94	2.78	3.56	3.27	27
Greece	1975-97	1.33	5.02	2.50	11
M1	1975-87	0.22	6.02	..	15
M3	1983-97	2.29	4.16	2.50	7
Portugal (L-)	1987-89	0.98	1.58	3.63	67
EU average[8]	1975-98	1.14	2.91	3.00	31

[1] Relates to period during which money targeting was implemented, respectively sub-period during which a specific money aggregate was targeted.

[2] Indicates average deviation (in % of initial money stock) between money growth outcome and point target or mid-point of target range.

[3] Indicates average absolute deviation (in % of initial money stock) between money growth outcome and point target or mid-point of target range.

[4] Indicates average range width in years that target ranges (rather than point targets or ceilings) applied.

[5] Percentage number of targets achieved. Point targets are assumed to have been met when outcome was within ± 0.5%-point of target.

[6] On the basis of rounded figures, the Bundesbank considers money targets in 1980 (5-8%), 1981 (4-7%) and 1991 (35%) to have been met (outcomes 4.9, 3.5 and 5.2% respectively). This would improve the overall target achievement ratio from 42 to 54%.

[7] Target related to the *minimum* decline in the Liquidity ratio (i.e., M2 in % of GDP); deviations are expressed in % of GDP.

[8] Excludes the Netherlands that expressed money targets in % of GDP rather than in percentage growth rates.

Germany, the most successful money targeter in terms of the smallest average absolute deviation from target (with the exceptions of the Netherlands, which used irregular money targets that it failed to achieve, and Portugal, which only had money targets a short time), met its target in no more than 42% of the time. It should be acknowledged, however, that the success of monetary policy cannot be evaluated in a straightforward manner from these outcomes. This is because policy success should be gauged in terms of the end objectives (especially the stability of prices and output growth), rather than of intermediate money developments. In fact, European countries commonly had considerable success in reducing inflation during the initial phase of money targeting. But it is telling that the average absolute deviation under Germany's money targets (1.7 percentage points) was actually twice as large as the average absolute deviation (0.85 percentage point) under the inflation assumption that was implicitly built into these money targets (see Table 3 on page 304).[3]

Thus, the weak marksmanship record implies that the main contribution of money targets has not been to the internal monetary policy decisions, nor to the external monitoring of the consistency of these decisions. Indeed, the apparent prevalence of velocity instability indicates that policy setting and policy monitoring strictly based on money targets is risky.[4] Rather, the chief contribution of money targets should be sought in the signalling of policy ambition, the orientation of policy towards a communicable and verifiable variable that falls squarely under the responsibility of the central bank, and the disciplinary influence on the central bank itself.[5] Put differently, money targets have primarily fulfilled a role in enhancing transparency and accountability.

A second insight that can be derived from this track record is that money targets were on average significantly overrun in all countries (except France). This suggests that money targets have generally

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[3] These figures support von Hagen's (1995) suggestion that the Bundesbank's strategy should not be described as money targeting, but rather as "monetary and inflation targeting".

[4] By the same token, Gerlach and Svensson (2000) find that the leading indicator properties of the Eurosystem's reference value for money growth are inferior to those of the real money gap derived from a P* model.

[5] While the Bundesbank seeks cosmetically to improve its marksmanship record by using rounded figures (see footnote 6 in Table 1), it also stresses the salutary impact of having to justify target misses (see Issing 1997 and König 1996).

been used to map out a more ambitious policy path than what the central bank was actually prepared to settle for. At first glance, the monetary authorities thus seem to have engaged in time inconsistent policies, by announcing a certain policy course and later implementing a looser one. However, there are indications that these ambitious targets were part of a (probably not premeditated) central bank ploy to facilitate the achievement of the final inflation objective. In particular, a central bank, that tends to set a conservative money target by erring on the upside in its velocity assumptions, may find it easier to tighten monetary policy when needed to meet its inflation goal, as it will usually be able to point to money growth above the target mid-point. The German case provides evidence on this score, as the Bundesbank has consistently used overly conservative velocity assumptions when constructing its money targets. This is illustrated by the fact that the average overshoot of the money target mid-point (1.0 percentage point) has been about three times larger than the average overshoot of the inflation assumption (0.3 percentage point) built into this target. There seems to be a parallel with the ECB's 4½% money reference value, which has been consistently overshot since its adoption and seems to have been tightly calibrated when assessed in terms of its building blocks (a rate of price increases of up to 2%, a trend decline in velocity of between 0.5 and 1%, and a conservative estimate of trend output growth of between 2 and 2½%).

A related distinguishing feature of the European experiences with money targeting is the pragmatism with which this policy strategy has been pursued. Indeed, in contrast with the dogmatic traits that characterise the monetarist school – as in Friedman's (1968) call for a fixed money growth rule – money targeting has invariably been implemented with considerable elasticity. This pragmatism is not only evidenced by the fact that money targets were breached twice as often as they were met, but also by the numerous technical adjustments to the targeting frameworks (including frequent changes to the money definition, target specification and time horizon). In practice, this pragmatism proved to be necessary for money targeting to be viable in a dynamic environment with ongoing financial innovation and portfolio shifts. In this respect, money targeting proved to be everything but a strict rule-based approach and to require ample scope for discretion.

However, in those cases where substantive and persistent money demand instability has led to blatant pragmatism and where the policy framework has tended to degenerate to unheeded discretion, money targeting has been rendered futile. This was for instance the case in the United Kingdom, which frequently switched money aggregate (four times) and used the widest target ranges (four percentage points). This made it well nigh impossible to advertise money targets as secure supports for the reputation of monetary policy. By implication, a further lesson has been that credible money targeting requires a degree of continuity in the design of the targets, in the performance under the targets, and in the external communication about the targets. The importance of continuity is illustrated by the fact that the most credible money targeting in Europe is seen to have been conducted by the Bundesbank, which at times adjusted its targeting framework, but on the whole maintained the highest level of constancy in terms of unchanged target parameters, smallest deviations under the target, and consistent policy communication based on these deviations. Such continuity also minimizes the risk of a given money target succumbing to Goodhart's Law, according to which any statistical stability between a money aggregate and nominal income is likely to disappear once this aggregate becomes the explicit objective of policy actions.[6] Indeed, a consistent monetary policy framework and implementation may be expected to contribute to more stable expectations and thus to more stable money demand (Issing 1997).

Another lesson is that money targets have increasingly been defined in a way that acknowledges the underlying uncertainties, especially with regard to the stability of money demand. This has been achieved mainly through the adoption of ranges or loosely defined point targets. Moreover, given the constraint of having only one main policy instrument (the short-term interest rate) and the need to focus the communication of policy objectives, central banks have generally shifted to advertising only one policy target or, in those cases with multiple targets, to indicating the policy prioritisation. In the case of non-dominant money targets, this has been done by classifying certain money growth objectives as monitoring ranges or supplementary indicators, or by significantly loosening the target definition, for in-

[6] In Goodhart's (1984, p. 96) own words, "any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes".

stance through the specification of a medium-term time horizon. This is the approach France, Italy and Spain ultimately settled for, as did the European Central Bank when it adopted a reference value for money based on medium-term estimates for the components underlying money growth (see European Central Bank 1999b).

There has also been a tendency to hedge the uncertainties governing intermediate money targets by providing a clear indication of the central bank's final objectives, notably in terms of inflation. In particular, following the time-honoured practice of the Bundesbank, starting in 1994 the Banque de France spelt out the inflation assumption built into its money target. Similarly, in Spring 1995 the Governor of the Banca d'Italia initiated a custom of announcing the inflation rate he viewed as feasible for the year. And, based on this tradition, the European Central Bank has also chosen to quantify the price stability objective it pursues (and which is incorporated in its reference value for money growth). Such specifications of the underlying inflation objective make it easier for the central bank to deviate from its money target for the sake of safeguarding the final policy goal.

On the specific design of the targeting framework, the European experience indicates a general shift towards using broader money aggregates in order to internalise portfolio shifts between the components of narrow aggregates and other liquid assets. This shift is supported by empirical evidence that broad aggregates are more stable (see Fase and Winder 1993 and Monticelli and Strauss-Kahn 1992). Since broad aggregates are typically less controllable, this shift has also reflected an increasing dominance of stability over controllability considerations in the selection of target aggregate. This lesson is reflected in the Eurosystem's reference value for money, which relates to the broad euro area aggregate M3.

Besides this, consensus has emerged normally not to set specific money targets beyond a one-year time horizon. This reflects the experience that longer-term targets are subject to such uncertainty that any policy precommitment beyond that time scope should, at most, only relate to a vaguely defined medium-term objective. At the same time, however, European central banks have also converged towards not conducting mid-year revisions. This reflects the perception that frequent revisions risk watering down the strength of policy signals and confusing the public. Rather, the preference has been to maintain unchanged targets and explicitly to communicate the justification for

any departure from target. In this way, upholding original targets exerts a disciplinary influence on the central bank and avoids the risk of unwarranted discretion that accompanies frequent target changes. Credibility has thus come to be viewed as more dependent on whether the justification for a deviation is convincing than on whether or not a target is met. Finally, on a more technical note, the European preference has emerged to set fourth quarter to fourth quarter targets, rather than December on December targets or annual growth rates. This has served, on the one hand, to focus attention on developments in the target year, while, on the other, smoothing out random fluctuations and end-of-year effects. This technical lesson has also been carried over to the European Central Bank, which defines developments under the reference value for money in terms of a three-month moving average of the twelve-month growth rate.

3. The lessons of exchange rate targetry

Each current EU member has at some time or other over the past quarter century pursued a monetary policy strategy of exchange rate targeting, although the implicit anchor country (Germany) did so with an additional degree of freedom. In a number of cases, notably Austria, Belgium (and by implication Luxembourg) and effectively also Denmark, this is the only strategy that has been consistently pursued during this period. The success in implementing this strategy has been mixed: most European currencies lost considerable ground *vis-à-vis* the Deutsche Mark under both the snake and European Monetary System (EMS) arrangements (see Table 2). Indeed, the reputation of exchange rate targeting has been tarnished by the various EMS crises, even if it is testimony to the potential strength of this strategy that seven of the eleven countries (Austria, Belgium, Denmark, France, Germany, Luxembourg and the Netherlands) entered EMU in 1999 on the basis of nominal exchange rate targets that had been set twelve or more years earlier.

Europe's rich history of exchange rate targeting harbours a host of lessons, some of which were drawn gradually, others in a context of crisis. In general, almost all EU countries assigned an increasingly

TABLE 2

EXCHANGE RATES IN EUROPE *VIS-À-VIS* GERMANY, 1975-98[1]

		Annualised rate of devaluation/depreciation					Total cumulative depreciation
		Snake	ERM	Other official peg	Floating	Total	
Austria	12/74 - 07/76	0.0					0.0
	07/76 - 01/95			0.0			–1.0
	01/95 - 12/98		0.0				0.0
	12/74 - 12/98					0.0	–1.0
Belgium / Luxembourg	12/74 - 03/79	0.9					5.5
	03/79 - 12/98		1.3				30.4
	12/74 - 12/98					1.3	37.6
Denmark	12/74 - 03/79	4.3					18.6
	03/79 - 12/98		1.6				36.2
	12/74 - 12/98					2.1	62.5
Finland	12/74 - 10/77				8.2		24.7
	10/77 - 08/92			1.3			50.0
	08/92 - 11/96				2.0		8.9
	11/96 - 12/98		0.0				1.3
	12/74 - 12/98					3.1	106.3
France	12/74 - 03/76	0.0					–0.2
	03/76 - 03/79				7.7		24.9
	03/79 - 12/98		1.8				45.8
	12/74 - 12/98					2.5	81.7
Greece	12/74 - 01/95				13.4		1152.0
	01/95 - 03/98			3.7			11.1
	03/98 - 12/98		0.0				–3.0
	12/74 - 12/98					11.5	1249.0
Ireland	12/74 - 03/79			0.0			47.2
	03/79 - 12/98		2.1				54.9
	12/74 - 12/98					3.5	127.9
Italy	12/74 - 03/79				12.8		66.9
	03/79 - 08/92		4.1				70.1
	08/92 - 11/96				6.2		29.0
	11/96 - 12/98		0.0				0.4
	12/74 - 12/98					5.6	267.3
Netherlands	12/74 - 03/79	0.9					3.9
	03/79 - 12/98		0.2				4.5
	12/74 - 12/98					0.3	8.5
Portugal	12/74 - 08/77				21.6		69.6
	08/77 - 04/92			1.8			384.5
	04/92 - 12/98		2.4				22.0
	12/74 - 12/98					10.1	902.8
Spain	12/74 - 06/89				7.2		173.4
	06/89 - 12/98		2.7				33.5
	12/74 - 12/98					5.5	265.1
Sweden	12/74 - 08/77	2.4					23.2
	08/77 - 10/92			2.3			80.4
	10/92 - 12/98				4.4		28.2
	12/74 - 12/98					4.6	185.0
United Kingdom	12/74 - 10/90				4.2		91.5
	10/90 - 08/92		0.0				5.8
	08/92 - 12/98				0.1		0.3
	12/74 - 12/98					3.1	103.2

[1] All figures reflect devaluation/depreciation *vis-à-vis* the Deutsche Mark, except the column 'Other official peg', which indicates devaluation against the official exchange rate target. Moreover, while figures for 'Snake', 'ERM' and 'Other official peg' relate to average annualised rate of *official* devaluations, figures for 'Floating' and 'Total' periods relate to average annualised rate of *market* depreciation. On account of these differences in definition, figures across columns and through sub-periods do not necessarily add up.

dominant role to the exchange rate in their monetary policy strategies. This was not only on account of the political momentum driving European economic integration, but also because the expansion of the tradables sectors strengthened the exchange rate channel of monetary transmission and because money demand instability in the context of liberalised capital flows reduced the attractiveness of quantity-oriented policy approaches. More specifically, *hard* exchange rate targets steadily gained popularity, even if the institutional modalities of such a strategy (in particular the potential fluctuation bandwidth around the target) have generally become looser. This is reflected in the greater frequency and cumulative size of realignments during the European snake and the first ten years of the EMS, than in the decade prior to EMU. Actually, the European record indicates that a soft currency strategy aimed at ensuring a competitive real exchange rate level – such as was implemented in the Scandinavian and Southern European countries through the better part of the 1980s – brings about higher inflation (expectations) rather than higher growth; in no country has such a strategy survived the test of time.

Another lesson is that exchange rate targeting agreements, whatever their formal design, are almost by nature predestined to end up being asymmetric, with the anchor role taken up by the larger country pursuing the tightest and most stable policies. The follower countries have the important benefit of enhanced policy discipline, but at the prime cost of losing monetary policy autonomy. This became abundantly clear under the EMS, which was created with a semblance of symmetry (in terms of realignments being joint decisions, exchange rate pressures being measured in the common ecu currency against a common divergence indicator, and financing facilities being set up to support weak currencies). In this context, the division of roles between anchor and follower countries has proven to be governed by considerable inertia, which underscores the influence of track records and constancy in monetary policy strategy. In fact, once its anchor role had been clearly established, Germany's dominant position in Europe's exchange rate arrangements survived major domestic policy slippages, including periods when economic developments in other large European countries (notably France) were significantly more stable, both internally and externally. This inescapable asymmetry, as well as its inertia, is powerfully illustrated by the fact that, with one

anomalous exception, the Deutsche Mark never devalued against any other currency within the framework of either the snake or the EMS.

The European experience also indicates that a prolonged period of exchange rate stability does not mean that the nominal convergence necessary to underpin this stability is actually taking place. The exchange rate targeting experiences of Ireland in the early 1980s, of Finland, Italy, Portugal, Spain, Sweden and the United Kingdom during the next ten-year period, and of Greece during the late 1990s, all show that it is possible to maintain an exchange rate peg for a considerable time period even when the domestic inflation rate and the underlying policies are clearly inconsistent with this external anchor. In other words, the link between the exchange rate target and the macroeconomic policies that largely determine its sustainability is loose at best. By consequence, the disciplinary influence of an exchange rate target is unpredictable and abrupt. And, as many European countries can testify (notably Sweden and the United Kingdom, which both subsequently abandoned this strategy altogether), this difficulty is compounded by the fact that failure to uphold an exchange rate target can bring with it massive costs – in terms of intervention losses, diminished monetary policy credibility and collateral damage from unduly high interest rates during the defence of the peg. These costs are evidently much higher than in the case of missing, say, a money or inflation target.

A further lesson from the European record is the importance of broadly parallel macroeconomic developments between countries maintaining mutual exchange rate links. In this respect, the existential EMS crises of 1992-93 harshly brought home the lesson that asynchronised economic developments (stemming from Germany's relatively buoyant domestic demand in the wake of unification) can undermine exchange rate stability as forcefully as divergent policy discipline can. This accentuates the heavier burden that exchange rate targeting places on fiscal and wage policies, not only because of these policies' impact on the long-run sustainability of the target, but also on account of their contribution to the short-run stabilisation of the domestic economy. With monetary policy aimed at an external target, other policies have to be tailored more keenly to the needs of the internal economy than in the case of domestically-oriented monetary policy strategies. This change of emphasis is especially apparent in the institutional design of EMU (a fixed exchange rate agreement of sorts),

where the 1991 Maastricht Treaty on European Union emphasised the need to limit budgetary deficits and debts, while the subsequent Stability and Growth Pact (concluded after the 1992-93 EMS crises) stressed the need to create adequate scope beneath these ceilings for national stabilisation policy.

Developments in Europe have also vividly illustrated how exchange rate targeting becomes more demanding once capital flows are freed of restrictions. While intervention policy could previously be used to buy time for apparently necessary domestic policy adjustments, the liberalisation of capital flows drastically shortened the duration of any period of respite, rendering the intervention instrument all but impotent. In this context, the widening of intervention limits around an exchange rate target and the concomitant enlarging of two-sided exchange rate risk have proven to be effective ways of limiting the scope for speculative attacks. In principle, this weakens the strength of the exchange rate anchor; in the European practice, an increased emphasis on the central parity precluded a significant softening of the exchange rate target.

In addition, the European record confirms that the opening up of capital accounts makes exchange rate targets more susceptible to volatile market sentiments and thereby minimises the scope for monetary policy actions or communications aimed at anything other than the exchange rate target. This was poignantly illustrated by the downward pressures on the French franc in mid-1993, which were triggered by domestically-oriented signals from the monetary authorities and occurred despite solid fundamentals. Within the group of most successful exchange rate targeters, this was also shown by the fact that the countries with the tightest and longest-standing exchange rate pegs (Austria and the Netherlands) survived the 1992-93 EMS crises unscathed, whereas the countries with somewhat looser or more recent pegs (Belgium and Denmark) came under heavy speculative attack.

Besides again emphasising the contribution of continuity to the credibility of a monetary policy strategy, these combined experiences thus suggest that exchange rate targeting – in contrast with money targeting – is best pursued tightly, even when the targeting framework provides room for flexibility and discretion. In general, the European practice shows that exploiting any flexibility to deviate from an exchange rate target, or communicating that this may occur

in the future, risks raising market doubts about the true commitment to the external anchor. In this respect, experience indicates that exchange rate targets can hardly be combined in a meaningful manner with other monetary policy targets for credit, money, inflation or whatever. To the extent that countries have maintained such auxiliary targets, these targets have either played no effective role in actual policy setting, or in practice have not seriously conflicted with the exchange rate target.

In sum, Europe's extensive experience with exchange rate targeting conveys a mixed message. On the one hand, the preconditions for success in a context of free capital flows are highly demanding: macroeconomic developments need to run broadly parallel with the anchor country, the scope to orient monetary policy at anything other than the exchange rate is strictly limited, and fiscal and wage developments need to contribute relatively strongly to the strategy's sustainability. Moreover, the costs of failure are relatively steep. On the other hand, Europe provides evidence that exchange rate targeting can still be viable with an open capital account and that this strategy can provide a stable policy framework. Among the countries pursuing the tightest exchange rate regimes (notably Austria and the Netherlands), there is evidence that economic structures gradually adjust to the regime choice in a way that enhances optimal currency area attributes (Hochreiter and Winkler 1995 and Wellink 1994). On balance, the risks and costs of exchange rate targeting weigh heavily, as illustrated by the resolve to move beyond this regime and irrevocably lock exchange rates through EMU.

4. The lessons of inflation targetry

The rise of inflation targeting during the 1990s was spurred by conceptual advances in monetary strategy (especially the emerging consensus that there is no exploitable trade-off between inflation and unemployment) and technical progress in the analysis and forecasting of inflation. But it also reflected practical problems with prevailing strategies. Indeed, following its introduction in New Zealand in 1990, inflation targeting spread readily across Europe after the 1992-93 EMS

crises had forced several central banks to abandon their exchange rate target, or had left them with wide fluctuations bands around sharply devalued exchange rate targets. Within the EU, overriding inflation targets were successively adopted by the United Kingdom (in 1992), Sweden (1993), Finland (1993) and Spain (1995). But in a broader sense, other European central banks also moved in the direction of this strategy by clarifying the inflation objective underlying their monetary policy making. This was the case in France (1994), Italy (1995) and Portugal (1997), and was in line with Germany's well established custom of publishing the inflation assumption incorporated into its money target (which it started doing in 1975). While the European experience with quantified inflation objectives is thus based on distinctly different frameworks, a few generic conclusions can nonetheless be drawn.

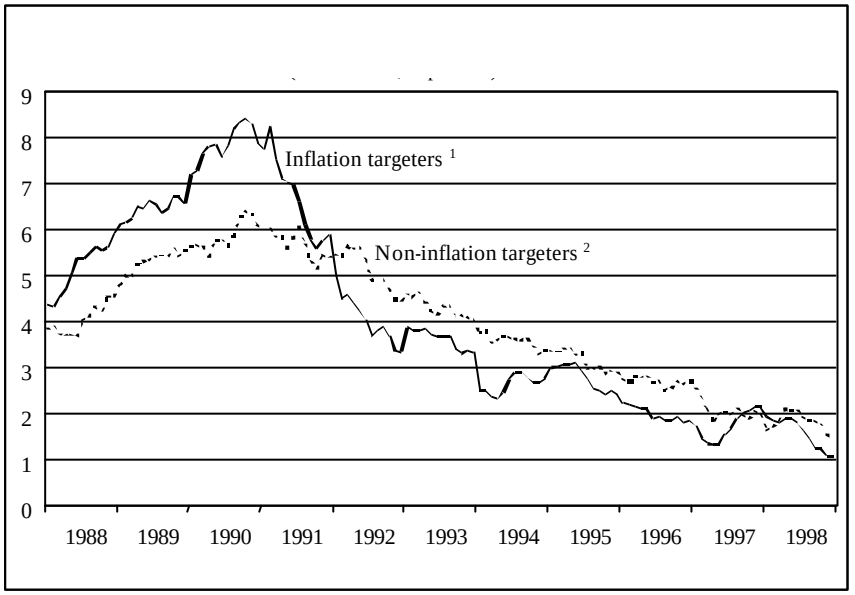
From a broad vantage point, the European experience with inflation targetry is propitious, particularly if the initial credibility of monetary policy in the respective countries is taken into account. A comparison of inflation performance between the European countries with inflation targets, and those without, indicates that the former countries have been remarkably successful in maintaining relatively low levels of inflation once the new strategy had been launched. In fact, average annual inflation was marginally better in the former group from 1992 until the start of EMU in 1999 (see Chart 1). This achievement is striking since it occurred in the wake of massive currency devaluations in each of these countries and followed a period (in the late 1980s) of significantly weaker inflation performance. Moreover, this relatively favourable inflation performance was sustained through the expansionary phase of the economic cycle, which took off in the second half of the 1990s in most inflation targeting countries.

A preliminary appraisal thus suggests that inflation targeting frameworks did facilitate a break with past policy behaviour, and did indeed provide a structure – and incentives – for improved inflation performance in these European countries. This is in line with global evidence of better central bank performance on inflation following the adoption of this strategy (Bernanke *et al*. 1999, Debelle 1997 and McCallum 1996). Nonetheless, the disinflation process in these countries remained painful. This tallies with appraisals that the introduction of inflation targeting per se does not improve real economic per-

formance by lowering the sacrifice ratio or by otherwise generating a credibility bonus (see Bernanke *et al*. 1999, Bofinger 2000, Jonsson 1999 and Lane and van den Heuvel 1998).

CHART 1

INFLATION IN INFLATION TARGETING EUROPE
(CPI inflation, in per cent)



1 Finland, Spain, Sweden and the United Kingdom (unweighted average).
2 Austria, Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands and Portugal (unweighted ave rage).

A closer look at the marksmanship record of European inflation targeting countries confirms that marksmanship under this strategy has actually been good (see Table 3). Specifically, the average absolute deviation under inflation targets (0.8 percentage points) has been less than one-third of the average absolute deviation under money targets in Europe (roughly 2.9 percentage points; see Table 1). This is reflected in a much higher target achievement ratio in inflation targeting EU countries (65%) than in money targeting EU countries (31%) or, for that matter, than under money targets in Germany (42%). And this more favourable record was attained notwithstanding target ranges that were narrower on average in inflation targeting countries

TABLE 3

INFLATION TARGETING MARKSMANSHIP IN EUROPE, 1993-98

Country	Period[1]	Average deviation[2]	Average absolute deviation[3]	Average width of target range[4]	Target achieved[5] (in %)
Countries with inflation targets					
United Kingdom[6] (RPIX)	1993-98	0.41	0.44	2.70	100
Sweden (CPI)	1995-98	–0.78	1.18	2.00	25
Finland (CPIY)	1995-98	–1.48	1.48	..	25
Spain (CPI)[7]	1996-98	–0.40	0.40	..	100
Average	1993-98	–0.46	0.85	2.42	65
Countries with numerical inflation objective alongside intermediate money and/or exchange rate target					
Germany[8] (GDP deflator)	1975-98	0.35	0.85	..	75
France (CPI)[9]	1994-98	0.38	0.62	2.00	8
Italy (CPI)[10]	1995-98	0.08	0.73	..	75
Portugal (HICP)[11]	1997-98	–0.08	0.28	..	50
Average	1975-98	0.30	0.77	2.00	74

[1] Relates to period during which inflation targets actually applied. Unless otherwise specified, based on calendar years, except for UK where fiscal years apply.

[2] Indicates average deviation (in % points) between inflation outcome and point target or target range mid-point.

[3] Indicates average absolute deviation (in % points) between inflation outcome and point target or target range mid-point.

[4] Indicates average width of target ranges (in % points) in those years that target ranges (rather than point targets or ceilings) were announced.

[5] Point targets are assumed to have been met when outcome was within ± 1% point of target. This corresponds to the target bandwidth in Sweden, to the UK requirement since May 1997 that larger deviations are explained in an open letter and to the implicit width of the price stability objective specified in France and Italy.

[6] UK used target ranges until May 1997, when a point target was adopted. In last year of this period, width of target range is set at 1.5% points, in line with original aim of being in lower half of 1-4% range by end of parliamentary period (May 1997 at latest). As RPIX inflation fell to 2.5% in May 1997, target is assumed to have been met in fiscal year 1996/97.

[7] Next to inflation targets for 1997 and 1998, the reference value for opening months of 1996 (3.5-4%) is assumed to have been a target for the first quarter. The target ceiling for 1997 (< 3%) is assumed to have corresponded to a mid-point of 2.5, in line with the more precise reference value later specified for this year.

[8] Germany's inflation objectives are based on the (since 1985 normative) inflation assumption explicitly built into its money targets. The GDP deflator has been taken as the inflation measure, reflecting the in recent years preferred measure of the Bundesbank when compiling these targets.

[9] France defined its inflation objective as an overall price *increase* not exceeding 2%, implying a tolerance range for inflation of 0-2% and a mid-point of 1%.

[10] Until 1998, the Banca d'Italia's Governor defined the central bank's inflation objectives as ceilings, against which deviations have been measured. For 1998, as in France, the objective was defined as containing the *rise* in consumer prices to 2% or less, implying a tolerance range for inflation of 0-2 and a mid-point of 1%.

[11] Portugal's reference values for inflation were defined as ceilings, against which deviations are measured.

(2.4 percentage points) than in the money targeting countries in general (3.0 percentage points) or Germany in particular (2.5%). The superior marksmanship under inflation targets, even relative to Germany's esteemed performance under money targets, suggests that – other things equal – inflation targets provide more accurate guidance to expectations about monetary policy. By the same token, they also create a stronger basis for policy precommitment and central bank accountability.

The empirical evidence on the European countries' experiences with inflation targeting further indicates that inflation targets have been pursued in a slightly asymmetric fashion. In particular, EU central banks pursuing inflation targets generally seem to have been happier with outcomes beneath the target (mid-point) than ones above it, since there has been, on average, a significant undershooting of inflation targets (equivalent to almost half a percentage point, see Table 3). This asymmetry may partly reflect the unexpectedly favourable global inflation climate of the 1990s, as well as, in the cases of Finland and Spain, the gravity of meeting the EMU entry criterion on low inflation. At the same time, however, the desire to err on the side of caution for the sake of a rapid build-up of policy credibility also seems to have been at play. In this regard, it is notable that this asymmetry has not been evident in the European countries with numerical inflation objectives alongside money or exchange rate targets. This suggests that the motive of accumulating credibility has weighed relatively heavily in the monetary policy implementation of countries with inflation targets. In turn, this seems to reflect the lack of monetary policy credibility at the time these countries adopted the new strategy.

A specific area where inflation targeting countries experienced a steep learning curve during the 1990s is the external communication of monetary policy. The prime vehicle for such communication has been the *Inflation Report* introduced by each inflation targeting country within a year of adopting the new strategy (except for Finland, which incorporated the elements of an *Inflation Report* into its existing *Bulletin* series). These *Reports* have progressively matured, providing increasingly refined and insightful overviews of the considerations driving monetary policy. A specific challenge was how to epitomise the strategy's wide-ranging orientation in a way that would be easily understood (as with traditional money and exchange rate targets), while also doing justice to the inherent uncertainties and policy

transmission lags. This search culminated in the publication, first in the United Kingdom and then also in Sweden, of a visually impressive inflation forecast fan chart in which the central tendency for inflation (the mode), the degree of uncertainty (the variance) and the balance of risks (the skewness of the probability distribution) are jointly projected over the course of time.

In a broader sense, public speeches, press releases after policy changes, hearings before parliamentary committees and – only in the United Kingdom – prompt publication of the minutes of policy meetings, have all been stepped up to enhance the transparency of monetary decision-making. This emphasis on communication has reflected the view that transparency is crucial to underpin policy credibility and, by guiding expectations, to enhance policy effectiveness. At the same time, transparency heightens the accountability of monetary authorities, at a minimum towards the general public, and thereby provides balance to the discretionary scope under inflation targeting. Of course, the trend towards greater transparency has also been apparent in countries implementing strategies other than inflation targeting – Portugal's in-depth public analyses of developments under its reference range for inflation being a case in point. But the inflation targeting countries have been at the forefront.

In terms of operational specifics, European inflation targeting regimes converged at inflation targets of 2%. Although the United Kingdom forms an exception – with a steady state RPIX inflation target of 2½% – this level is basically comparable to that in other countries, as the RPIX inflation measure has historically been about one-half of a percentage point higher than the harmonised inflation measure more widely used on the European continent (see UK Treasury 1998). This common level of 2% is the highest rate of price increase still consistent with the definition of price stability used by European central banks at the time ("inflation close to zero [...] i.e. a maximum of 2% in the medium run" as spelt out in Raymond 1990).[7] Thus, the central banks of Finland, Spain, Sweden and the United Kingdom each sought the maximum distance from deflation considered compatible with a legislated price stability mandate. The commonly tar-

[7] In fact, this definition of price stability is very similar to that later adopted by the Eurosystem as its primary objective: "a year-on-year increase in the Harmonized Index of Consumer Prices (HICP) for the euro area of below 2 per cent"(see European Central Bank 1999a, p. 46).

geted inflation level of 2% has therefore essentially reflected a normative verdict against any sustained inflation, rather than a judgement on the optimal rate of inflation. In absence of firm indications that this latter rate lies above 2%, the common decision has been to keep the sights on the steady state objective of stable prices, and not to slide on the slippery slope of targets that fall outside the price stability definition. The Sirens would not fall silent at, say, 3%.

As regards the issue of bandwidth, the European experience suggests that target ranges of 2 or 3 percentage points are likely to cover most unanticipated shocks to inflation.[8] Specifically, the European record shows that the average bandwidth was 2.4 percentage points in those years that target ranges (rather than point targets or ceilings) were announced, and that the target range for inflation was observed in 70% of these cases. If point targets are assumed to have corresponded to a bandwidth of 2 percentage points, the overall target observance ratio is still 65% (see Table 3). However, it may be argued that this favourable record primarily reflects the propitious global inflation climate during the 1990s. On this score, Germany's long experience with (since 1985 normative) explicit inflation objectives provides some guidance. Viewed over the 24 years starting in 1975, the standard deviation of the divergence under the inflation objectives amounted to only 1.1 percentage points. Furthermore, the average absolute deviation under these objectives has been similar to the more recent experience of the European inflation targeting countries (in fact, these average deviations have been surprisingly identical: 0.85 percentage points in both cases). In terms of bandwidth, a target range of two (respectively three) percentage points centred around the inflation objective would have covered 75% (respectively 88%) of Germany's inflation outcomes.

In this context, however, there has been a movement towards using point targets rather than ranges, as evidenced by the decisions of Spain and the United Kingdom to join Finland with such a target definition. At the same time, there has been an increased emphasis on underlying inflation, as Spain highlighted caveats for wage and fiscal developments, Sweden has started publishing an inflation forecast for

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[8] This contrasts sharply with the estimates by Haldane and Salmon (1995). Based on simulations for the United Kingdom (using quarterly data), they find significant inflation uncertainty, suggesting a range as wide as six percentage points may still be missed in about one-third of the time.

underlying inflation alongside its forecast for headline inflation, and the United Kingdom has stressed the inflation measure (RPIY) excluding indirect taxes and subsidies as well as mortgage interest payments. Overall, while the historical evidence is still scant and the optimal choice may vary from country to country, a preference has emerged to target a more precise and more controllable inflation measure (implying a point target for underlying inflation) rather than one that is more general and visible (such as a wide target range for headline CPI). The former set-up pins down expectations and highlights the inflation measure on which policy-makers hope economic agents (especially wage setters) will actually base their decisions – even if this is not the inflation measure which these agents, as consumers, are most affected by. In this way, the target definition may help avoid the first round effects of exogenous supply side shocks from becoming ingrained in the economy, while also linking a central bank's credibility and accountability to a measure it can reasonably direct.

Nonetheless, the European experience shows that, whatever the chosen set-up, inflation targets are bound to be missed some of the time. The deviations in Table 3 illustrate this all but perfect controllability of price developments, even if Spain and the United Kingdom showed surprisingly accurate marksmanship in the reviewed period. Adjusting the target parameters has not provided much of an escape, since an inflation measure stripped of all variable exogenous elements becomes meaningless, as does an unduly wide target range or a very long target time horizon. The solution, again, has been sought in terms of transparency. In this regard, by acknowledging the uncertainties governing monetary policy, open communication as it were constituted an insurance premium against the risk of inflation target misses.

5. Concluding remarks

The rich monetary history of recent decades harbours a host of lessons, especially in Europe where central banks have tried a myriad of different policy recipes. These experiences can be broadly clustered according to the three dominant strategies that have been pursued:

money, exchange rate and inflation targeting. While the European record allows some comparative conclusions to be drawn, such as that money targeting seems to require a degree of pragmatism whereas exchange rate targeting calls for stringency, it also illustrates that a central bank may achieve success with different strategies and that a strategy's contribution to success varies as economic circumstances change. In practice, the choice of monetary strategy is largely an empirical issue that varies across time, depending on the stability of relationships between intermediate and final policy objectives. A common lesson, however, is that adopting a dominant and explicit nominal target of sorts (rather than pursuing multiple targets or a 'just do it' approach) promotes the consistency, continuity, communication and accountability of monetary policy.

Of course, past experience offers only partial guidance to the future, particularly in the face of structural breaks such as the shift to EMU. Nonetheless, several of the more specific lessons spelt out in this article are relevant to the euro area and have been taken on board by the European Central Bank. This holds for the role of money in the policy strategy, as the adoption of a medium-term-oriented reference value – rather than an annual target – explicitly recognises the all but perfect controllability and stability of money developments. It is further reflected in the technical specifications of the reference value, especially in the choice of a broad reference aggregate and of a moving one-year reference horizon, and in the publication of the underlying components, notably including the ultimate objective in terms of inflation. Indeed, it is also evident in the commitment to an overriding and clearly defined price stability objective, to be pursued in a medium term context. Next to past practice, these choices are related to the initial uncertainties governing the behavioural relationships in the euro area and to the need for flexibility in the wake of the regime shift. In this respect, the European Central Bank's strategy combines elements typical of money targeting and of inflation targeting, without however fitting neatly under either of these two headings. And the lesson in terms of exchange rate targeting has been a negatory one: avoid adopting such a target (or target zone) in a relatively closed economic area, since the monetary policy requirements of an external target are then likely often to deviate from those of a domestic price stability objective.

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