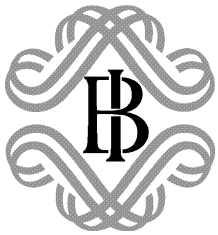
BANCA D'ITALIA

Temi di discussione

del Servizio Studi

The Evolution of Confidence for European Consumers and Businesses in France, Germany and Italy

by Paolo Carnazza and Giuseppe Parigi



Number 406 - June 2001

The purpose of the "Temi di discussione" series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.

The views expressed in the articles are those of the authors and do not involve the responsibility of the Bank.

THE EVOLUTION OF CONFIDENCE FOR EUROPEAN CONSUMERS AND BUSINESSES IN FRANCE, GERMANY AND ITALY

by Paolo Carnazza* and Giuseppe Parigi**

Abstract

The paper examines the evolution of consumer and business confidence indexes in France, Germany and Italy since the mid-eighties, using regressions of the indexes on a set of common macroeconomic variables for each country. Comparison of the results across agents (i.e. consumers and entrepreneurs in the same country) and across countries highlights some differences in behaviour that have emerged in the last fifteen years. In particular, the paper inquires into the causes of the recent break in the relationship between the consumer and business confidence indexes.

JEL classification: E32, E37.

Keywords: firms and consumers confidence index.

Contents

* ISAE.

** Banca d'Italia, Research Department.

1. Introduction[1]

With European economic and monetary union (EMU) much empirical research has been devoted to computing coincident and leading indicators of the euro-area business cycle. Given the lack of a suitable data-base because of statistical aggregation and homogeneity problems, researchers have increasingly employed the qualitative information available from the European Commission harmonised surveys on consumers and on the manufacturing, construction and retailing firms (see the Commission "Business Climate Indicator", November 2000; and for Italy the indicator proposed by Carnazza and Parigi, 2001). Recent analyses on the euro-area and on individual countries provide a thorough description of the main features of these surveys.

This paper does not build another indicator or improve on existing ones but seeks to enhance understanding of the qualitative variables commonly referred to as "climate" indicators. This analysis should make it clear that confidence indexes can be considered as a synthesis of both macroeconomic variables and psychological factors (see Katona, 1977; Locarno and Parigi, 1997), providing a better rationale for factoring confidence variables into empirical models, such as the bridge models proposed by Parigi and Schlitzer (1995) or Bovi et al. (2000). The analysis is carried out through regressions of the confidence indexes in France, Germany and Italy and for consumers and firms, so as to highlight the differences in the behaviour of different groups of agents in the same country and across countries.

The paper is organised as follows. In the next section the cyclical behaviour of the various confidence indexes over the period 1986-2000 is briefly examined in order to describe common as well as divergent patterns such as the decreasing correlation between the two indexes within each country since 1998, in coincidence with the start of stage 3 of the EMU.

Section 3 gives the regression analysis of the "determinants" of confidence. Consumers and firms are analysed separately, using a common set of variables for each

[1] We are grateful to A. Brandolini, M. Magnani, L. F. Signorini and S. Siviero for useful comments. The usual caveats apply. The views contained here are those of the authors only and do not necessarily reflect those of the institutions for which they work.

country. The estimation results could give the impression that indexes can be approximated by traditional macro-aggregates, undermining their importance as leading indicators. In section 4 we show that the informative power of confidence indexes is richer and cannot be limited only to quantitative macroeconomic variables.

The last section presents a synthesis of the results and draws some concluding comments on the behaviour of consumers and firms in the three countries, with suggestions for further research.

2. The cyclical behaviour of consumer and business confidence indexes in France, Germany and Italy

Here we trace the cyclical behaviour of indexes of consumer and business confidence in the three main euro-area countries from 1986 to 2000. For France and Germany we have used the confidence indexes proposed by the Commission (1997); for Italy, however we have adopted the business confidence indicator proposed by Carnazza and Parigi (2001) and the ISAE consumer confidence index (for descriptions, see the Appendix 1).

Graphical inspection (Fig. 1) indicates the more sharply defined cyclical pattern of business confidence indexes and the greater amplitude of their cyclical movements by comparison with consumer indexes. Consumer indicators seem to have lagged behind, albeit only slightly, at least until the first half of 1998. In Italy, during recent recessionary phases as defined in Altissimo, Marchetti, and Oneto (1999), the two indexes generally showed a pro-cyclical behaviour, declining significantly. Moreover, it appears that the business index anticipated the end of the last two recessionary phases with a lead of two quarters and one quarter, respectively.

The weakening in the correlation between the two indexes inside each country, evident in the graphs, is confirmed by table1. Coefficients are fairly high and positive for the period as a whole, especially in France and Germany, but they become very weak – and negative for Germany – from 1998.1 onwards. More specifically, starting from the end of 1998, the business indexes show a recovery with a slowdown in the last semester of 2000, while consumer confidence indicators signal a greater volatility, revealing increasing uncertainty (on this particular evolution of the two indexes see also the comment in the European Central Bank Bulletin of October 1999).

Fig. 1

CONSUMER AND BUSINESS CONFIDENCE INDEXES

(Indexes, 1995=100)

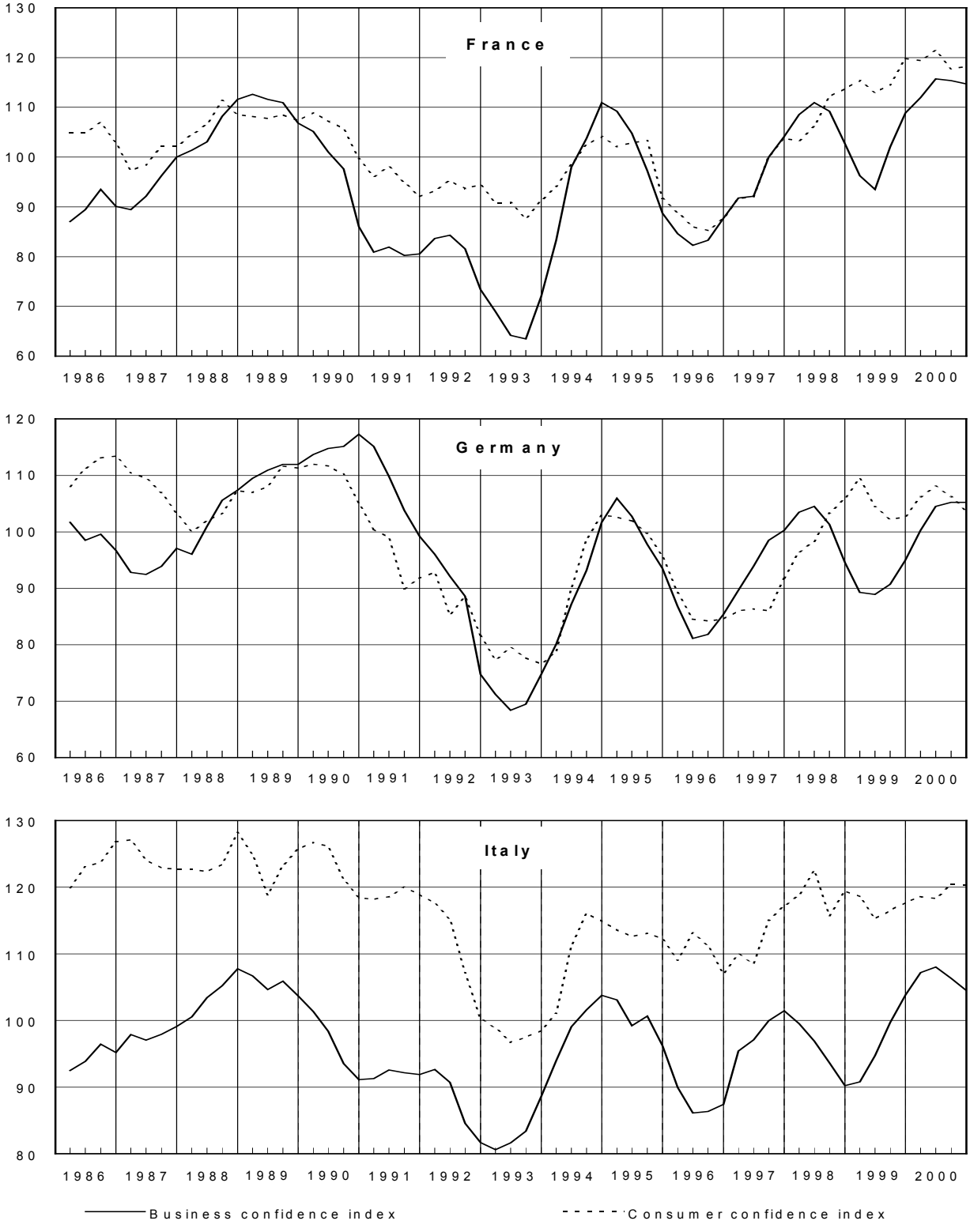


Table 1

CORRELATION COEFFICIENTS BETWEEN CONSUMER AND BUSINESS INDEXES

	1986.1 - 2000.4	1990.1 - 2000.4	1996.1 - 2000.4	1998.1 - 2000.4
FRANCE	0.78	0.78	0.82	0.13
GERMANY	0.74	0.78	0.47	-0.40
ITALY	0.64	0.59	0.49	0.03

3. The estimation of consumer and business confidence indexes

In this section we explore the relationships between the confidence indexes described above and the main macroeconomic variables in the three countries. This analysis provides new evidence on the correlation between the consumer and business confidence indexes through the role played by their respective determinants. The comparison among the French, German and Italian cases should certainly enhance our understanding.

Consumer and business confidence indexes have been regressed on the same set of variables in each country, highlighting their different reactions to the same factors. More specifically, the dependent variables are the manufacturing indexes (FBCI, DBCI and IBCI for France, Germany and Italy, respectively; for Italy the more general business confidence indicator) and the consumer confidence indexes (FHCI, DHCI and IHCI). The analysis covers the period from the second or third quarter of 1986 till the end of 2000.

The regressors may be classified into two groups: one related to the general economic situation and the other representing economic policy decisions (the complete set of variables appearing in the equations is given in Appendix 1). The first group includes industrial output (PROD); capacity utilisation (CAPA); the inflation and the unemployment rates (Π and U); the nominal exchange rate (EXCH) and the real effective exchange rate (COMP); the consumer and business confidence indexes of the countries in the euro area excluding the one under examination (EUBCI and EUHCI)[2]. The second group includes the interest rate (INT) and the public debt/GDP ratio (DEBY). Finally, we have also included a dummy

[2] These variables may help showing the comovement between a single country and the rest of the euro area.

variable for the dates of the main political crises and/or elections (POLDUM), in order to account for the effects, assumed to be negative, of uncertainty deriving from political events.

The estimation procedure is based on separate ordinary least squares (OLS) regressions for each index in each country. The general-to-specific approach has been followed, starting with a maximum of four lags for each regressor. In every equation only one lag of the dependent variable has proved to be significant, reflecting possible inertia in the agents' behaviour. A set of test statistics is computed to check for violations of the hypotheses on the stochastic structure of the residuals. In particular, tests for normality, homoskedasticity of the residuals and parameter stability may help to detect problems as the lack of weak exogeneity or the presence of structural breaks. The preferred specification is log-linear with the exception of variables expressed as percentage rates (U, Π, DEBY and INT).

As regards integration features, we followed an eclectic approach. Confidence indexes are considered *a priori* as stationary variables (they are bounded by construction). However, it may be that for the particular sample analysed some trends emerge, as is confirmed by unit root tests (see Appendix 2). This may help to explain the significance of trended variables in the regressions, such as DEBY for the Italian case. Moreover, the residuals of each equation have been checked for stationarity, by computing standard augmented Dickey-Fuller tests (failing a theory about the long-run determinants of confidence indexes, a proper cointegration analysis is not applicable).

A general problem with the general-to-specific procedure, especially when there is no *a priori* theoretical information, is that of over-parameterisation, i.e. retaining regressors only spuriously correlated with the dependent variable. To counter this risk we estimated the equations over different sample periods, as suggested by Hoover and Perez (1999) and Hendry and Krolzig (1999).

Table 2

DETERMINANTS OF CONSUMER CONFIDENCE
(OLS estimates)

FRANCE Dependent Variable: $\log(FHCI)_t$ (1986.2 – 2000.4)			**GERMANY** Dependent Variable: $\log(DHCI)_t$ (1986.2 – 2000.4)			**ITALY** Dependent Variable: $\log(IHCI)_t$ (1986.3 – 2000.4)		
Variables	Coefficients	t-statistics(*)	Variables	Coefficients	t-statistics(*)	Variables	Coefficients	t-statistics(*)
CONSTANT	1.607	4.190	CONSTANT	0.163	1.164	CONSTANT	0.650	2.272
$\log(FHCI)_{t-1}$	0.722	10.876	$\log(DHCI)_{t-1}$	0.774	15.097	$\log(IHCI)_{t-1}$	0.613	8.757
$(U + \Pi)_t$	-0.025	-3.876	$\Delta(U + \Pi)_t$	-0.012	-2.958	$\Delta(U+\Pi)_t$	-0.018	-4.122
$\Delta(\log(CAPA),2)_t$	0.580	4.603	$\Delta(\log(DBCI))_{t-4}$	0.110	1.850	$\Delta(\log(PROD),3)_t$	0.436	4.084
$\Delta(\log(FBCI))_t$	0.242	3.918	$\log(EUHCI)_t$	0.191	2.995	$\log(IBCI)_{t-2}$	0.335	4.366
$\Delta(\log(EUHCI))_t$	0.510	4.485	$\Delta(\log(EUHCI))_t$	0.886	7.392	$\log(DEBY)_{t-1}$	-0.079	-3.244
$\Delta(\log(EXCH))_t$	-0.759	-3.538	$\Delta(\log(EXCH))_t$*DU983	-0.240	-5.559	$\Delta(\log(EXCH))_t$	-0.254	-4.651
$\Delta(POLDUM)_t$	-0.008	-2.288				$\Delta(\log(INT),4)_t$	-0.098	-4.870
						$\Delta(\log (INT),4)_t$*(1-DU983)	0.050	2.553
						$\Delta(POLDUM)_t$	-0.017	-2. 613
$\overline{R}^2$ = 0.96			$\overline{R}^2$ = 0.97			$\overline{R}^2$ = 0.94		
S.E.(%) = 1.90			S.E.(%) = 1.83			S.E.(%) = 1.80		
Misspecification tests (p-values in parentheses)								
Autocorrelation	DW	1.97	Autocorrelation	DW	2.03	Autocorrelation	DW	2.22
	LM_{1-4}	0.16 (0.96)		LM_{1-4}	0.74 (0.57)		LM_{1-4}	0.78 (0.55)
	LB_4	0.73 (0.95)		LB_4	2.77 (0.60)		LB_4	2.10 (0.71)
Heteroskedasticity	$ARCH_{1-4}$	2.36 (0.67)	Heteroskedasticity	$ARCH_{1-4}$	3.28 (0.51)	Heteroskedasticity	$ARCH_{1-4}$	3.52 (0.47)
Unit root test on residuals	ADF	-5.20	Unit root test on residuals	ADF	-5.68	Unit root test on residuals	ADF	-6.24
General specification	RESET	0.14 (0.87)	General specification	RESET	1.90 (0.16)	General specification	RESET	2.16 (0.13)
Normality	LM2	1.36 (0.72)	Normality	LM2	2.85 (0.42)	Normality	LM2	1.38 (0.71)

(*) Heteroskedasticity consistent t-statistic. *Note*: S.E., regression standard error; DW, Durbin-Watson statistic; LM_{1-4}, Lagrange multiplier test for residual autocorrelation of order 1 through 4; LB, Lijung-Box test for residual autocorrelation up to the 4^{th} lag, $\chi^2(4)$; $ARCH_{1-4}$, autoregressive conditional heteroskedasticity test up to the 4th lag, $\chi^2(4)$; ADF, augmented Dickey-Fuller test (10% critical value: -5.0); RESET, test of functional form; LM2, test for skewness and excess kurtosis. MA(x,y) is the (uncentred) y terms-moving average of x.

To obtain more efficient estimates, each regression was estimated by the seemingly unrelated regression (SUR) technique, with which one can consider the correlation among the residuals of different countries due to common shocks, such as the Gulf war or the more recent oil price rise. The application of the SUR estimation procedure (see Appendix 2) provides more efficient but not quantitatively different estimates from the OLS ones (see Tables 2 and 3). We thus discuss only the OLS estimates.

3.1 Consumers

The OLS estimates for the three countries are presented in table 2. In each case the fit is highly satisfactory (Fig. 2), with the adjusted R^2 ranging from 0.94 (Italy) to 0.97 (Germany); the standard error of the regression is quite low, always less than 2 per cent. The misspecification tests signal no particular problems. All coefficients have the expected sign and are highly significant. The specifications are similar across countries. The consumer indexes appear to be positively influenced by the industrial production and the capacity utilisation index and negatively by the sum of the inflation rate and the unemployment rate (the "discomfort index"; see Lovell, 1975)[3]. Similarly, we find a significant effect of the business confidence index. Consumer confidence in the rest of the euro area is significant only for France and Germany.

Two noteworthy results are the role of the interest and of the exchange rate. In the first case, notwithstanding the presence of an inflation variable in the regression, the estimates for Italy show that rises in the interest rate have had a negative influence on consumer confidence. Set alongside the absence of significance for France and Germany, this may suggest that Italian households have interpreted central bank decisions on rates as an appraisal of the general economic situation (see Buttiglione *et al.*, 1997a). With the participation of Italy in EMU this announcement effect seems to have weakened somewhat, as the reduction of the coefficient of the interest rate since mid-1998 suggests.

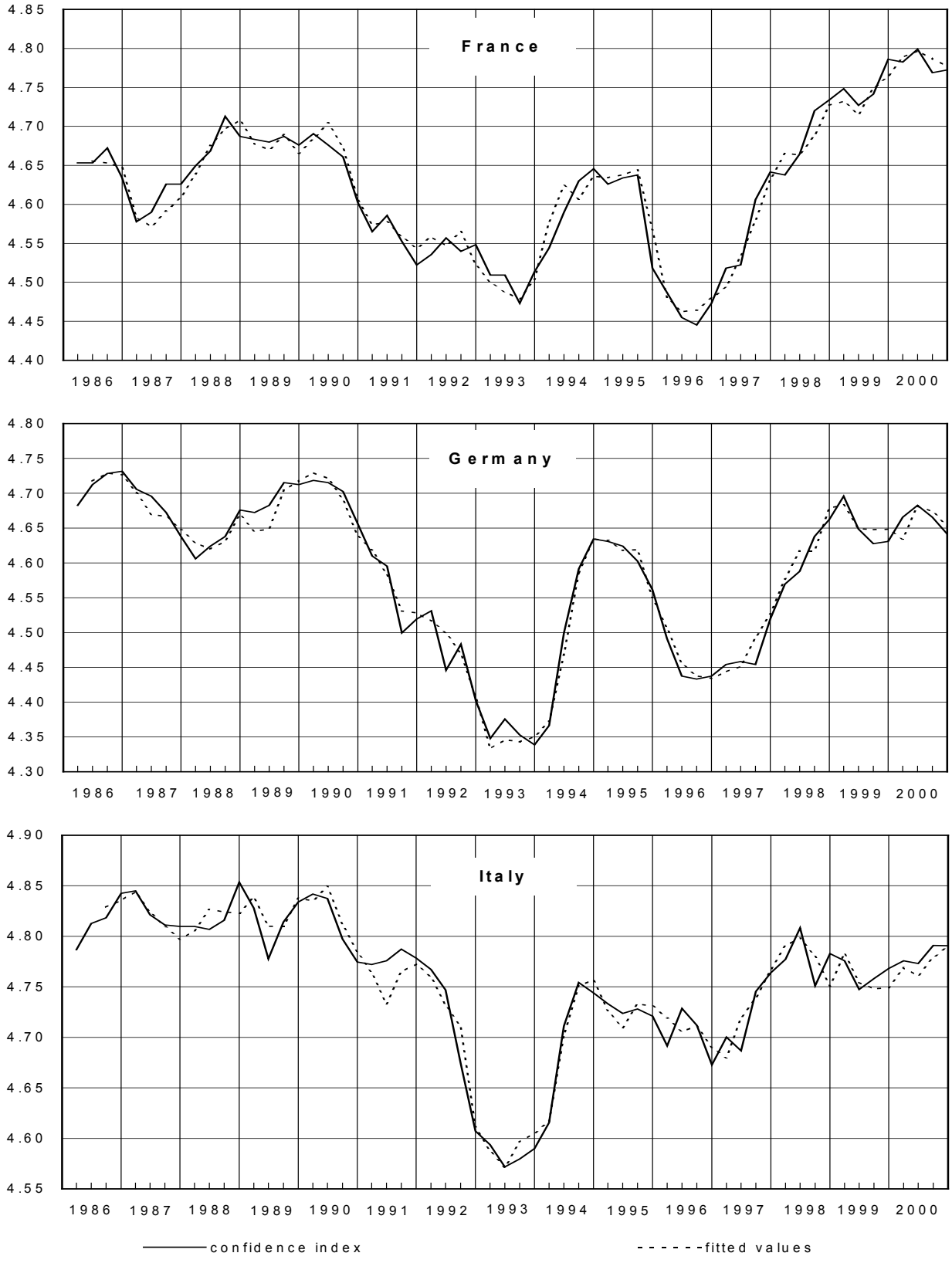
The exchange rate (national currency/foreign currency) shows a negative sign in all equations.

---

[3] The F-test results that U and Π must have the same coefficient for France, Germany and Italy are (% p-values in parentheses): France, 0.25 (62.3); Germany, 1.17 (28.5); Italy, 0.55 (46.0).

Fig. 2

CONSUMER CONFIDENCE INDEX



Besides worsening the terms of trade, a devaluation may imply a negative judgement of the international markets on the economic conditions in a country. According to our analysis, after the monetary union the exchange rate effect on consumers vanishes: for France and Italy the exchange rate with respect to the D-mark becomes fixed, while for Germany the coefficient of the exchange rate with respect to the dollar loses significance after mid-1998 (the rates of the franc and the lira with respect to the dollar were not significant).

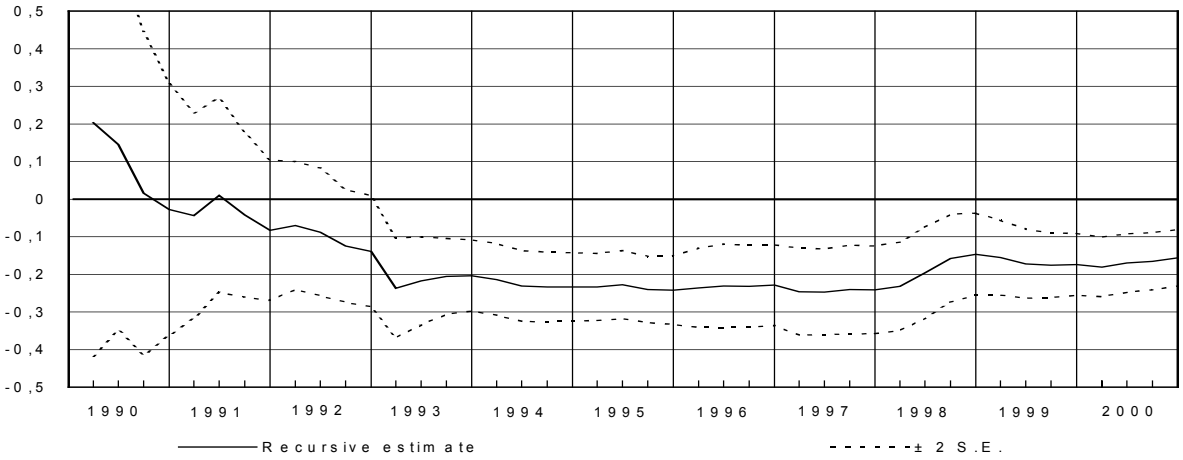
Thus EMU would appear to have influenced the relationship of consumer confidence indexes to interest and exchange rates. Until the end of 1996, interest and exchange rates reflected the impact of the international standing of the country on French, German and Italian consumer confidence, a factor that has somewhat declined in importance since the beginning of the stage 3 of EMU. This suggests that a more "domestically oriented" attitude of consumers may have been established in recent years, as shown by the increasing role of labour market, fiscal policy and political stability indicators. As we shall see later, this carries interesting implications for the combined evolution of the consumer and business confidence indexes.

The effects of EMU and of the Maastricht Treaty on consumer attitude are evident in the role of public finance, approximated by DEBY. Our estimates show that DEBY has negatively affected consumer confidence only in Italy, where public finances have always been a matter serious of concern. This result warrants some comment. If consumers are not "ricardian", lax fiscal policy to sustain disposable income should have positive effects on confidence and hence on consumption. By contrast, tight fiscal policies should affect consumers' outlook adversely. In this case the relationship between consumer confidence and DEBY should be positive, which seems to have been the case in Italy until the beginning of the nineties. For 1986-1991 the DEBY coefficient is positive (but not significant), afterwards it becomes negative and highly significant (Fig. 3).

In 1991-92, the rapidly rising ratio of public debt to GDP (which went above the psychological threshold of 100 per cent), the mounting risk of financial crisis and the loss of confidence in the lira forced a drastic restriction of the fiscal policy stance. Over the period 1990-98 the budget deficit was reduced by more than 7 points as a percentage of GDP and the public debt ratio was put onto a downward path.

Fig. 3

DEBY COEFFICIENT ESTIMATES IN THE ITALIAN CONSUMER CONFIDENCE REGRESSION



After the sharp drop in 1993, the consumer confidence index rebounded following the improvement of the general economic conditions also signalled by the trend inversion of DEBY. Yet the index did not recover the pre-1990 level: the commitment to reduce the still very high stock of public debt, and maintain approximate budget balance (required by the Maastricht Treaty and the Stability and Growth Pact; see EC, 2000) might have had a negative impact on expectations about disposable income (further tightening of pension rules is frequently advocated in the political and economic debate; some empirical analyses have shown the important role of pension wealth in explaining consumption decisions; for Italy, see Rossi and Visco, 1994 and 1995; Zollino, 2000).

Finally, the POLDUM dummy variable has been found significant in Italy and France. This result clearly reflects the political systems in the three countries, characterised by different degrees of stability (and therefore of uncertainty). POLDUM enters the regressions as a first difference probably because consumers tend to over-react to changes in the political situation: soon after political uncertainty is resolved, consumer confidence seems to overshoot its pre-crisis level. This pattern is fairly clear for the Italian confidence index around the last two general elections in the spring of 1994 and 1996 (see Fig. 1). This result contrasts with that obtained for firms, where no over-reaction is observed and POLDUM enters the regressions without the first difference operator (see Table 3).

Table 3

DETERMINANTS OF BUSINESS CONFIDENCE

(OLS estimates)

FRANCE Dependent Variable: $\log(FBCI)_t$ (1986.3 – 2000.4)			**GERMANY** Dependent Variable: $\log(DBCI)_t$ (1986.2 – 2000.4)			**ITALY** Dependent Variable: $\log(IBCI)_t$ (1986.2 – 2000.4)		
Variables	Coefficients	t-statistics(*)	Variables	Coefficients	t-statistics(*)	Variables	Coefficients	t-statistics(*)
CONSTANT	0.910	3.876	CONSTANT	1.350	6.151	CONSTANT	3.394	9.247
$\log(FBCI)_{t-1}$	0.531	8.598	$\log(DBCI)_{t-1}$	0.572	14.229	$\log(IBCI)_{t-1}$	0.629	16.108
$\Delta(\log(INT),6)_{t-1}$	-0.086	-3.282	$\Delta(\log(INT),6)_t$	0.036	3.499	$MA(INT,4)_{t-2}$	-0.015	-7.234
$\Delta(\log(PROD),4)_t$	0.695	2.551	$\Delta(\log(PROD),6)_t$	0.476	3.658	$\Delta(\log(PROD),10)_{t-5}$	0.238	3.672
$\Delta(\log(CAPA),6)_t$	0.835	5.735	$\Delta(\log(CAPA),3)_t$	0.598	4.981	$\Delta(\log(EUBC))_t$	0.445	9.263
$\Delta(\log(EUBCI))_t$	0.588	5.983	$\Delta(\log(EUBCI))_t$*(1-DU912)	0.655	7.684	$\Delta(\log(IHCI))_t$*DU982	0.401	6.454
$\log(FHCI)_t$*DU984	0.264	3.543	$MA(\log(DHCI),3)_t$*DU983	0.130	3.458	(1-DU982)	-0.035	-3.636
(1-DU984)	1.226	3.538	(1-DU983)	0.565	3.291	$\log(COMPET)_{t-1}$	-0.104	-2.999
$\Delta(\log(COMPET),3)_{t-3}$	-0.970	-5.433	$\Delta(\log(COMPET))_{t-1}$	-0.559	-3.460	$\log(COMPET)_{t-1}$*(1-DU961)	-0.007	-4.539
$\Delta(DEBY,2)_t$	-1.473	-3.485	$\Delta(\log(U),2)_t$	-0.251	-3.996	$MA(\log(DEBY),2)_{t-1}$	-0.236	-7.342
$POLDUM_t$	-0.016	-2.609				$POLDUM_{t-1}$	-0.027	-4.505
$\overline{R}^2$ = 0.98			$\overline{R}^2$ = 0.98			$\overline{R}^2$ = 0.97		
S.E.(%) = 2.15			S.E.(%) = 1.78			S.E.(%) = 1.30		
Misspecification tests (p-values in parentheses)								
Autocorrelation	DW	1.69	Autocorrelation	DW	2.18	Autocorrelation	DW	2.02
	LM_{1-4}	0.67 (0.62)		LM_{1-4}	1.70 (0.17)		LM_{1-4}	1.12 (0.36)
	LB_4	3.41 (0.49)		LB_4	4.55 (0.34)		LB_4	4.32 (0.36)
Heteroskedasticity	$ARCH_{1-4}$	5.28 (0.26)	Heteroskedasticity	$ARCH_{1-4}$	0.99 (0.91)	Heteroskedasticity	$ARCH_{1-4}$	2.47 (0.65)
Unit root test on residuals	ADF	-5.79	Unit root test on residuals	ADF	-5.52	Unit root test on residuals	ADF	-5.22
General specification	RESET	2.89 (0.07)	General specification	RESET	0.66 (0.52)	General specification	RESET	1.76 (0.18)
Normality	LM2	1.62 (0.65)	Normality	LM2	4.20 (0.24)	Normality	LM2	1.83 (0.61)

(*) Heteroskedasticity consistent t-statistic. *Note*: S.E., regression standard error; DW, Durbin-Watson statistic; LM_{1-4}, Lagrange multiplier test for residual autocorrelation of order 1 through 4; LB, Lijung-Box test for residual autocorrelation up to the 4^{th} lag, $\chi^2(4)$; $ARCH_{1-4}$, autoregressive conditional heteroskedasticity test up to the 4th lag, $\chi^2(4)$; ADF, augmented Dickey-Fuller test (10% critical value: -5.0); RESET, test of functional form; LM2, test for skewness and excess kurtosis. MA(x,y) is the (uncentred) y terms-moving average of x.

Overall, the estimates for consumer confidence in the three countries show fairly similar patterns, with some notable exceptions, such as the role of public finances in Italy. In all cases, economic policy and other variables appear to be relevant, confirming previous findings limited to single countries. An interesting common finding is the loss of importance of exchange rates with the institution of monetary union. This is true also for other variables linked to monetary policy decisions, as is shown by the reduction of the coefficient of interest rates in Italy.

3.2 Firms

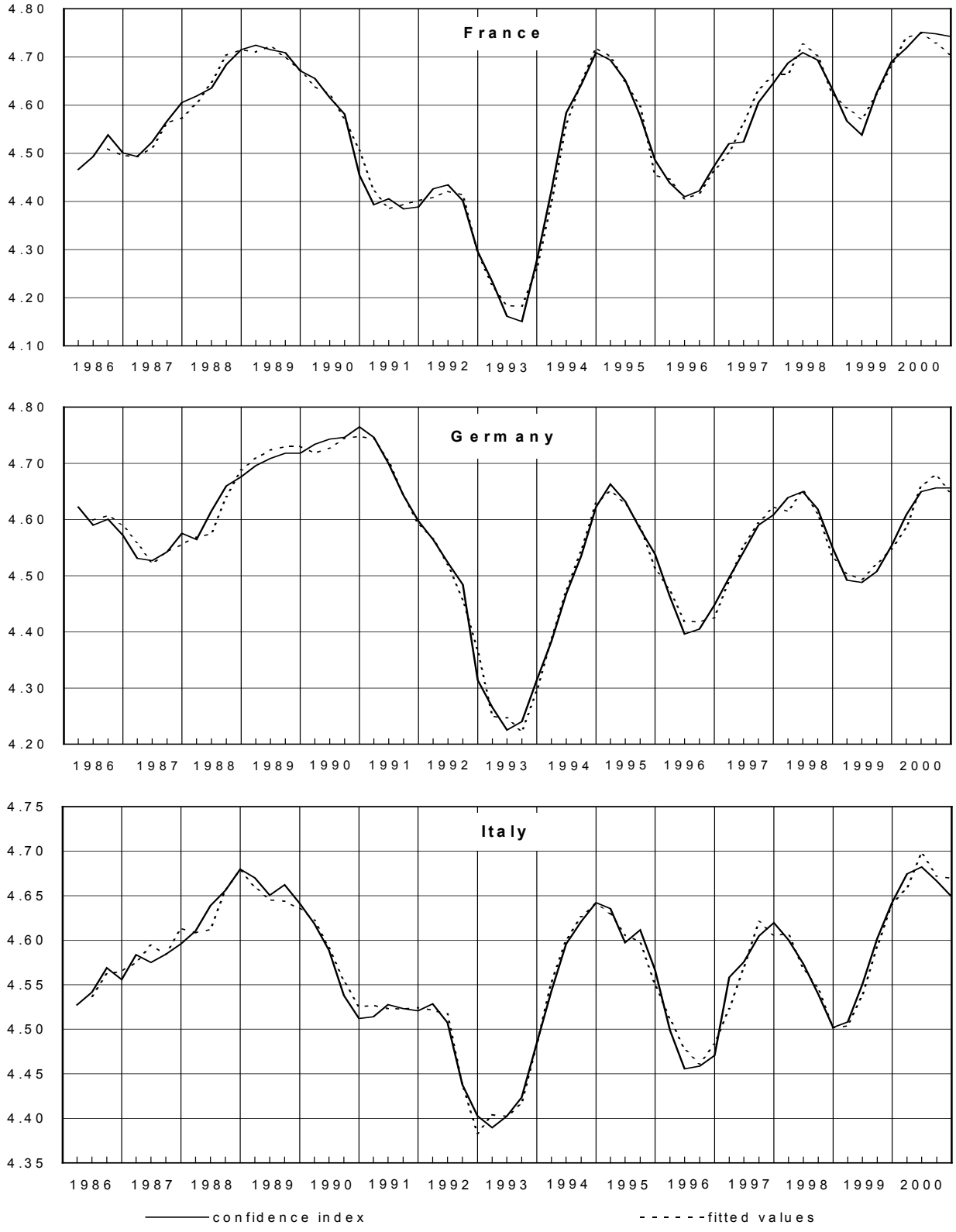
In analysing the business confidence index we have followed the same approach as for the consumer index. Single equations for each country are estimated using the same variables (a preliminary estimate for Italy is in Carnazza and Parigi, 2001). After the specification search, the final regressions show a satisfactory fit (Fig. 4), with better R^2 and standard errors than for the consumer index (except for the standard error for France; Table 3).

The specifications are well behaved, according to the standard tests. With respect to the form of the specification and significance, the results are fairly similar. However, some interesting differences between countries do emerge. Not surprisingly, the three indexes appear to be strongly linked to cyclical variables, such as industrial production and capacity utilisation; in the same fashion, we may interpret the role of some labour market variables, such as the unemployment rate (U, for Germany). The coefficient of POLDUM is negative and is significant only for France and Italy, confirming the consumer results.

The increasing cyclical convergence of the three economies is supported by the strong significance of the coefficient of the business confidence index in the other EMU countries (EUBCI). The convergence is particularly evident after 1993, with the creation of the single market (see Fig. 5). Here the German case is of particular interest. Before the recession of 1992-93 the dynamics of the German index and of EUBCI were substantially divergent, especially during the reunification (1989-1991), which fostered the optimism of German entrepreneurs. Accordingly, the coefficient of EUBCI in the German equation is significant only since the second half of 1991.

Fig. 4

BUSINESS CONFIDENCE INDEX



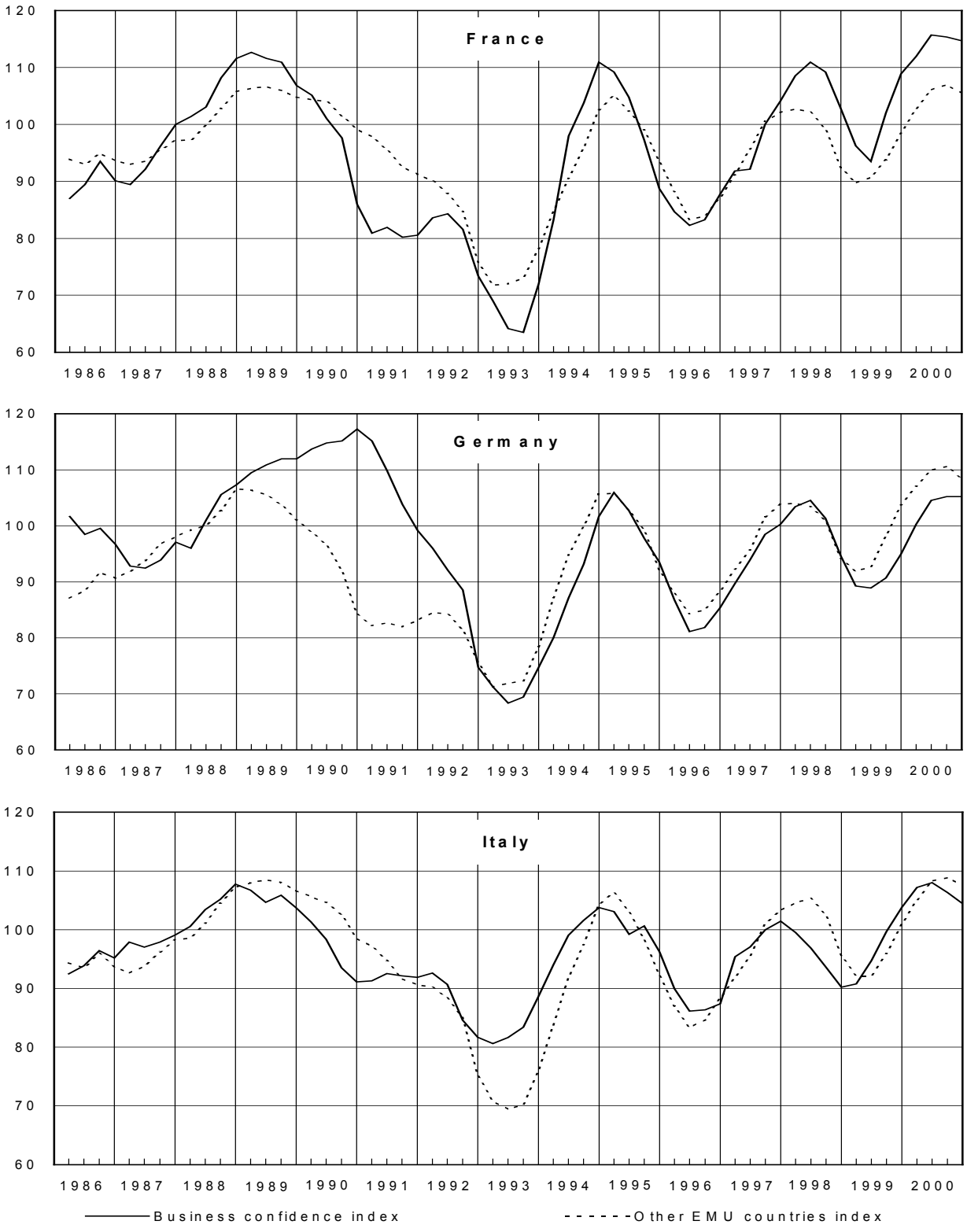
The influence of monetary policy is reflected in the interest rate, where there is a major difference between consumers and firms and among the three countries. For consumers, the estimates of the interest rate coefficient were affected by the likely collinearity with inflation for France and Germany; for Italy, the somewhat surprising significance was attributed to the important signalling role of the decisions of the central bank. For firms the coefficients of the interest rate are always highly significant, but negative in France and Italy and positive in Germany. (An inflation variable was included, of course, but it did not turn out to be significant.)

One interpretation of these results involves a differing perception in the three countries of the central bank's ability to keep the monetary policy stance tight enough, and for long enough, to dispel the risk of inflation. In countries with macrostability problems (Italy until the end of the nineties), it is plausible that the market may have interpreted a policy move (a rate increase, say), as a signal of the central bank's special information on the inflation risks. In this case (see Buttiglione et al., 1997b), official rate changes were associated with similar movements in long-term rates (this is fairly evident for Italy, less clear-cut for France). In Germany, by contrast, short-term rate changes were followed by opposite movements in long-term rates, signalling that the Bundesbank's monetary policy was deemed effective in countering inflation.

The negative correlation of business confidence with the public debt/GDP ratio (DEBY) in France and Italy may also be interpreted in this fashion. With a level of DEBY deemed excessive or unsustainable, it might be thought that government could oblige even an independent central bank to be more inflationary. As is pointed out by the literature on the "non-Keynesian" effects of fiscal policy, the composition of the adjustment may matter, especially in signalling the possible success of the consolidation effect (see Alesina and Perotti, 1995 and 1997). When improvements come from curbs on current expenditure, such as transfers to households, beneficial effects on GDP growth, unemployment and interest rates become more likely (see Perotti et al., 1998). In Italy and France action on these items has been very limited (actually, in France public spending increased from 1994; see European Commission, 2000), thus generating business expectations of future retrenchment.

Fig. 5

CYCLICAL CONVERGENCE
(Indexes 1995=100)



With the single market and the single monetary policy, the relative tightness of national fiscal policies may become a crucial element in firms' behaviour. This is particularly true for Italy, where the requirement of a rapid reduction of debt under the Stability and Growth Pact may prevent fiscal easing.

3.3 The relationship between consumer and business confidence indexes

The link between the consumer and the business confidence indexes shows a clear pattern in all countries. Before EMU, the two indexes were positively correlated: the estimated sign in all regressions is positive and significant. Afterwards, the relationship breaks down; there is no evidence of correlation in every country. In a sense this confirms the graphical analysis of the section 1, where it was shown that after mid-1998 the dynamics of the two indexes began to diverge[4].

A possible explanation may be found by comparing the estimations of the two indexes. As we have seen, since the advent of EMU households appear to have been strongly influenced by indicators directly linked to the internal components of economic activity. Variables such as exchange rates and interest rates have lost importance in favour of unemployment, inflation and fiscal policy. On the other hand, competitiveness plays a crucial role in firms' decisions. The coefficient of the real effective exchange rate (COMP) has a negative sign and is always strongly significant (for Italy it becomes even more important after the return to the EMS in 1996). This result suggests that in the new European environment the relative strength of the national productive system becomes a key determinant of growth. It is clear that, denied the short-cut of devaluation, a country should try to act on more structural problems in order to increase its competitiveness: a more flexible labour market say, or a reduction of the fiscal burden with cuts in current expenditure. In the last few years these topics have dominated the political and economic debate all over Europe and produced a number of policy measures.

A possible interpretation of our results is that at least in the short run the differing perceptions of labour market reforms, whether implemented or simply discussed, combined

---

[4] The ECB Bulletin (October 1999, pp. 22-23) shows a similar pattern for the euro area.

with the irreversible decision for a sounder budget had negative and positive influence on the confidence of households and firms respectively. However, if these reforms are thoroughly implemented the foreseeable positive effects on growth could reverse the initial negative attitude of households, thus restoring the correlation between the two indexes.

4. The leading nature of confidence indexes

The results of the preceding section could give the impression that confidence indexes may be reasonably well approximated by a set of macroeconomic variables, largely coincident with the cyclical evolution of the economy, as was advocated by most American economists in the Seventies[5]. It was stressed that nothing would be lost by ignoring confidence indexes and relying on sufficiently detailed macroeconomic analysis. More recently, Acemoglu and Scott (1994) for the United Kingdom and Locarno and Parigi (1997) for Italy have shown that a better understanding of the evolution of consumption may be achieved by integrating the traditional macroeconomic determinants with the consumer confidence index. According to the work of Katona, confidence indexes contain additional information on agents' behaviour not captured by quantitative economic variables. In other words, "it is necessary to rely on the people themselves to provide information on how precipitating circumstances and information received have influenced their attitudes and therefore their responses" (Katona, 1977, p. 101). Along these lines Locarno and Parigi (1997) find that the Italian consumer confidence index is influenced by a variable linked to some non-economic events (similar to POLDUM), a result we have replicated in this paper not only for Italy but for France as well. The result on the role of POLDUM is merely an initial indication of the informative power of confidence indexes. More evidence can be obtained by analysing the relationship of the relevant confidence index with the growth of household consumption and of GDP in each country.

---

[5] See for instance, Juster and Wachtel (1972a and 1972b), Shapiro (1972) and Lovell (1975) for analyses on the American consumer confidence index.

Table 4

PREDICTIVE PROPERTIES OF CONFIDENCE INDEXES

CONSUMER CONFIDENCE INDEX

FRANCE
Dependent Variable: $\Delta(\log(CONFR),4)_t$
(1988.1 – 2000.4)

Variables	Coefficients	t-statistics(*)
CONSTANT	-0.191	-2.067
$\Delta(\log(CONFR),4)_{t-1}$	0.427	3.577
$MA(FCOFR,2)_{t-1}$	0.043	2.138
$MA(RCOFR,4)_{t-2}$	0.297	2.273
$\overline{R}^2$ = 0.61		
DW = 2.06		

GERMANY
Dependent Variable: $\Delta(\log(CONDE),4)_t$
(1992.2 – 2000.4)

Variables	Coefficients	t-statistics(*)
CONSTANT	-0.221	-4.815
$FCODE_{t-1}$	0.052	5.143
$RCODE_{t-2}$	-0.165	-2.371
$\overline{R}^2$ = 0.44		
DW = 1.88		

ITALY
Dependent Variable: $\Delta(\log(CONIT),4)_t$
(1988.1 – 2000.4)

Variables	Coefficients	t-statistics(*)
CONSTANT	-0.352	-2.235
$\Delta(\log(CONIT),4)_{t-1}$	1.321	13.040
$\Delta(\log(CONIT),4)_{t-2}$	-0.701	-5.317
MA(FCOIT,4)	0.076	2.260
$MA(RCOIT,4)_{t-3}$	-0.270	-1.787
$\overline{R}^2$ = 0.89		
DW = 2.16		

BUSINESS CONFIDENCE INDEX

FRANCE
Dependent Variable: $\Delta(\log(GDPFR),4)_t$
(1988.1 – 2000.4)

Variables	Coefficients	t-statistics(*)
CONSTANT	-0.096	-2.116
$\Delta(\log(GDPFR),4)_{t-1}$	0.735	7.011
FBUFR	0.075	7.142
$FBUFR_{t-1}$	-0.053	-4.071
$RBUFR_{t-2}$	-0.073	-3.273
$\overline{R}^2$ = 0.92		
DW = 2.29		

GERMANY
Dependent Variable: $\Delta(\log(GDPDE),4)_t$
(1992.2 – 2000.4)

Variables	Coefficients	t-statistics(*)
CONSTANT	-0.206	-2.739
$\Delta(\log(GDPDE),4)_{t-1}$	0.319	2.377
FBUDE	0.117	4.241
$FBUDE_{T-1}$	-0.069	-3.689
$RUDE_{t-3}$	-0.122	-2.927
$\overline{R}^2$ = 0.74		
DW = 1.94		

ITALY
Dependent Variable: $\Delta(\log(GDPIT),4)_t$
(1988.1 – 2000.43)

Variables	Coefficients	t-statistics(*)
CONSTANT	-0.492	-8.218
$\Delta(\log(COIT),4)_{t-1}$	0.349	4.728
FBUIT	0.111	8.284
$MA(RBUIT,5)_{t-2}$	-0.492	-2.979
$\overline{R}^2$ = 0.84		
DW = 2.28		

Legend: CON and GDP are seasonally adjusted, ESA 95 household consumption and gross national product from national accounts (at 1995 prices). RCO and FCO are the estimated residuals and the fitted values of the consumer equations in Table 2; RBU and FBU are the estimated residuals and the fitted values of the firm equations in Table 3; FR, DE and IT stand for France, Germany and Italy. DW, Durbin-Watson statistic. MA(x,y) is the (uncentred), y term,-moving average of x. (*) Heteroskedasticity-consistent t-statistics.

The idea is to replace confidence indexes with the fitted values and the estimated residuals derived from the equations presented in the tables 3 and 4, the intuition being that while the former may capture the cyclical part of the indexes, the latter are more closely related to their non-economic content.

To estimate these equations we have followed a sort of general-to-specific procedure, in order to find a suitable dynamic specification. In all cases (see Table 5), the confidence index residuals are significantly correlated with the dependent variable, thus confirming that they could contain information in addition to that approximated by macroeconomic variables. Moreover, with slight differences for consumers and firms in the various countries, the results (especially the lag structure of the estimated residuals), shed some light on the intrinsic leading nature of confidence indexes, thus providing further support for their role in the construction of leading indicators.

5. Concluding remarks

In the last decade confidence indicators have gained in importance in the short-term analysis of economic activity. Their statistical properties have been explored and researchers have increasingly examined their information content. This is especially so for consumer confidence indexes; the interest in business confidence indicators is relatively recent. Generally, these indexes have been found very useful in understanding trends in some major variables, such as consumption and GDP, especially in the case of exceptional events. A comparative study of the topic may be designed to consider not only consumers and firms but different countries as well.

An important result of our analysis is that confidence indexes not only sum up the cyclical evolution of several macroeconomic variables, but also capture effects linked to non-economic factors (political uncertainty, say). In this sense they may be regarded as powerful synthetic indicators. Moreover, our results show that confidence indexes contain useful information on the future evolution of macro-aggregates. This, together with their relatively easy computation and timely availability, helps explain why they increasingly form part of leading indicators.

Extending the analysis to several countries helps elucidate the main factors in the evolution of these indexes. An interesting result concerns monetary policy. Our estimates support the view that central bank decisions have had different effects depending on the macro-stability conditions of the different countries. The negative sign of the coefficient of the interest rate in Italy and (to a lesser extent) in France suggests that the decision has been perceived as a kind of general signal of national inflation risk.

From the estimation of consumers' confidence in France, Germany and Italy it appears that households behave in broadly similar patterns, dominated by "domestic" factors: the basic variables are inflation and unemployment, plus some national idiosyncrasies, such as the great concern over public finances in Italy. This description appears to have become even more appropriate with the advent of EMU, as exchange rates and the interest rates, though significant over the whole estimation period, have lost importance as determinants of consumer attitude.

As far as firms are concerned the results are rather different. With the single market the integration among the countries of the euro area has gradually increased. This is clearly reflected in the evolution of confidence since 1993. The monetary union, with the end of exchange rate flexibility, has magnified the role of competitiveness as shown by our estimates for firms. In this context, it is natural for business confidence to be positively influenced by all those actions, such as labour market reforms and sounder budgets designed to strengthen the national productive structure. But those same decisions have opposite effects on households, diminishing their confidence. These differing reactions presumably help explain the recent divergence between consumer and business confidence indexes.

APPENDIX 1: Definitions and the data

The analysis has been limited to quarterly data, as not all the macroeconomic variables are available at higher frequency. Monthly variables, such as confidence indexes, have therefore been aggregated by simple averaging of the months in the quarter. Generally, even though the aggregation to quarterly data could mean loss of efficiency, it also eliminates some noise.

For France and Germany we have used the confidence indexes proposed by the European Commission (1997), but for the Italian business confidence index we take the index proposed by Carnazza and Parigi (2001), which is the average of the confidence indexes for industrial firms and retail firms (seasonally adjusted). The former is the average of replies to questions on the level and the expected trend of orders and on the assessment on the level of stocks of finished products; the quarterly version is the simple average of the three months in the quarter. The latter is the average of replies to questions on the expected change in staff and orders and on the assessment on the level of stocks of finished products. In this case, the quarterly version is the three-term moving average centred on the last month in the quarter. Carnazza and Parigi (2001) show that the differences from the EC methodology do not cause any significant difference in the trends of the indexes. This is true also for the explicit consideration of the retail trade sector. All confidence indexes have been transformed into index numbers, with 1995=100.

The OECD data for the French and the German public debt are available only twice a year. Quarterly data have therefore been interpolated according to Chow-Lin (1976), using a trend as an indicator. To obtain DEBY, public debt data have been divided by the sum of nominal GDP in the last 4 quarters (terminating with the one under examination).

Table A1

LIST OF VARIABLES

FRANCE		GERMANY		ITALY	
Variables	Definitions	Variables	Definitions	Variables	Definitions
FBCI	Business confidence index, 1995=100, seasonally adjusted. Source: EC harmonised survey on manufacturing.	DBCI	Business confidence index, 1995=100, seasonally adjusted. Source: EC harmonised survey on manufacturing.	IBCI	Business confidence index, 1995=100 seasonally adjusted. Source: Carnazza and Parigi (2001).
EUBCI	Business confidence index for the 10 countries of the EMU different from France; seasonally adjusted. Source: EC harmonised survey on manufacturing.	EUBCI	Business confidence index for the 10 countries of the EMU different from Germany, seasonally adjusted. Source: EC harmonised survey on manufacturing.	EUBCI	Business confidence index for the EMU countries excluding Italy, seasonally adjusted. Source: EC harmonised survey on manufacturing.
EXCH	Franc/D-mark exchange rate until 1998.4; constant from 1999.1. Source: IMF.	EXCH	D-mark/dollar exchange rate until 1998.4; euro/dollar exchange rate from 1999.1. Source: IMF.	EXCH	Lira/D-mark exchange rate until 1998.4; constant from 1999.1. Source: IMF.
FHCI	Consumer confidence index, 1995=100 seasonally adjusted. Source: EC harmonised survey on consumers.	DHCI	Consumer confidence; index, 1995=100 seasonally adjusted. Source: EC harmonised survey on consumers.	IHCI	Consumer confidence; index, 1995=100 seasonally adjusted. Source: ISAE.
EUHCI	Consumer confidence index for the EMU countries excluding France; seasonally adjusted. Source: EC harmonised survey on consumers.	EUHCI	Consumer confidence for the 10 countries of the EMU different from Germany; seasonally adjusted. Source: EC harmonised survey on consumers.	EUHCI	Consumer confidence for the 10 countries of the EMU different from Italy; seasonally adjusted. Source: EC harmonised survey on consumers.
PROD	Industrial production index, 1995=100, seasonally and workdays adjusted. Source: INSEE.	PROD	Industrial production index, 1995=100, seasonally and workdays adjusted. Source: Bundesbank.	PROD	Industrial production; index, 1995=100, seasonal and workdays adjusted. Source: Istat.
Π	Year on year inflation rate of the harmonised index of consumer prices. Source: Eurostat and INSEE data.	Π	Year on year inflation rate of the harmonised index of consumer prices. Source: Eurostat and national data.	Π	Year on year inflation rate of the harmonised index of consumer prices. Source: Eurostat and Istat data.
INT	Banque de France's intervention rate until 1998.4; main Euro zone reference rate afterwards.	INT	Average of the Lombard and the official discount rates until 1998.4; main Euro zone reference rate afterwards.	INT	Official discount rate until 1998.4. Main Euro zone reference rate afterwards.
COMPET	Real effective exchange rate based on producers prices. Source: computations on OECD, IMF and national data.	Compet	Real effective exchange rate based on producers prices. Source: computations on OECD, IMF and national data.	Compet	Real effective exchange rate based on producers prices. Source: computations on OECD, IMF and national data.
U	Unemployment rate, ILO definition. Source: Eurostat.	U	Unemployment rate, ILO definition. Source: Eurostat.	U	Unemployment rate. Source: Istat.
CAPA	Capacity utilisation rate (%). Source: EC harmonised survey on manufacturing.	CAPA	Capacity utilisation rate (%). Source: EC harmonised survey on manufacturing.	DEBY	Debt/ GDP ratio. Source: Istat and Minister of Treasury.
DEBY	Debt/GDP ratio. Source: OCSE and national data.				

Table A.1 shows the main variables used for the estimation of confidence indexes. Besides the variables in the table, some dummy variables have been considered: DUYYQQ, a dummy variable with 1 until quarter Q of the YY year; POLDUM, a dummy variable with 1 for the quarter of the main political events. In this last case we have considered only changes in government and/or political-regional elections. It is therefore a variable with a more limited scope compared with those used in the analysis of the relationship between the "social and political instability" and growth (see Durlauf and Quah, 1998, for a review of the different definitions of the variables used in the empirical analysis). We think that for the countries and the period considered in our analysis the definition of POLDUM could be sufficient to capture the main effects of political uncertainty.

APPENDIX 2: Unit root tests and SUR estimates

a) Unit root tests

Three test statistics for the detection of a unit root have been computed: the augmented Dickey-Fuller, the Phillips-Perron tests and a test based on a double-length regression proposed by Pantula *et al.* (1994). For all tests the choice of the maximum lag length has been based on the Akaike information criteria directly implemented in the last available version of the TSP software. The P-values have been computed according to the tables published by McKinnon (1994).

Table A2

CONFIDENCE INDEXES: UNIT ROOT TESTS
(1986.1 - 2000.4)

Test statistics	France		Germany		Italy	
	Consumers	Business	Consumers	Business	Consumers	Business
Augmented Dickey-Fuller	-1.982	-2.331	-2.692	2.901	-1.095	-3.074
P-values	0.611	0.417	0.240	0.162	0.930	0.112
Number of lags	3	3	3	3	8	3
Weighted Double-length regression	-2.312	-2.503	-2.897	-3.127	-1.555	-2.308
P-values	0.420	0.291	0.112	0.060	0.875	0.424
Number of lags	3	3	3	3	9	4
Phillips-Perron	-4.693	-9.088	-6.241	-9.168	-6.138	-10.264
P-values	0.843	0.500	0.726	0.495	0.734	0.419
Number of lags	3	3	3	3	8	3

As a general comment it appears that all indexes should have a unit root. This result does not mean that these variables are inherently non-stationary, but that over the sample period they may have been characterised by some sort of trend. This has clearly to be taken into account in the regression by some trended variable. It is worth recalling that the results commented in the text are not supposed to support any “long-run” relationship between the indexes and their regressors.

b) SUR estimates

Table A3

DETERMINANTS OF CONSUMER CONFIDENCE
(SUR estimates)

FRANCE Dependent Variable: $\log(FHCI)_t$ (1986.2 – 2000.4)			**GERMANY** Dependent Variable: $\log(DHCI)_t$ (1986.2 – 2000.4)			**ITALY** Dependent Variable: $\log(IHCI)_t$ (1986.3 – 2000.4)		
Variables	Coefficients	t-statistics(*)	Variables	Coefficients	t-statistics(*)	Variables	Coefficients	t-statistics(*)
CONSTANT	1.581	4.141	Constant	0.054	0.383	CONSTANT	0.771	3.056
$\log(FHCI)_{t-1}$	0.726	11.016	Log(DHCI)t-1	0.802	13.622	$\log(IHCI)_{t-1}$	0.616	9.194
$(U + \Pi)_t$	-0.024	-3.747	$\Delta(U + \Pi)_t$	-0.010	-2.636	$\Delta(U+\Pi)_t$	-0.012	-3.054
$\Delta(\log(CAPA),2)_t$	0.585	4.466	$\Delta(\log(DBCI))_{t-4}$	0.093	1.655	$\Delta(\log(PROD),3)_t$	0.419	4.218
$\Delta(\log(FBCI))_t$	0.230	3.658	$\log(EUHCI)_t$	0.187	2.603	$\log(IBCI)_{t-2}$	0.315	4.648
$\Delta(\log(EUHCI))_t$	0.528	4.297	$\Delta(\log(EUHCI))_t$	0.977	6.978	$\log(DEBY)_{t-1}$	-0.089	-3.932
$\Delta(\log(EXCH))_t$	-0.679	-2.484	$\Delta(\log(EXCH))_t$*UP983	-0.214	-4.324	$\Delta(\log(EXCH))_t$	-0.236	-3.834
$\Delta(POLDUM)_t$	-0.006	-1.678				$\Delta(\log(INT),4)_t$	-0.097	-5.622
						$\Delta(\log(INT),4)_t$*DU983	0.051	3.038
						$\Delta(POLDUM)_t$	-0.020	-3.854
R^2 = 0.96			R^2 = 0.98			R^2 = 0.95		
S.E.(%) = 1.81			S.E.(%) = 1.77			S.E.(%) = 1.64		
DW = 2.01			DW = 2.12			DW = 2.16		

Note: S.E., regression standard error; DW, Durbin-Watson statistic. (*) Heteroskedasticity consistent t-statistic.

Table A4

DETERMINANTS OF BUSINESS CONFIDENCE

(SUR estimates)

FRANCE Dependent Variable: $\log(FBCI)_t$ (1986.3 – 2000.4)			**GERMANY** Dependent Variable: $\log(DBCI)_t$ (1986.3 – 2000.4)			**ITALY** Dependent Variable: $\log(IBCI)_t$ (1986.3 – 2000.4)		
Variables	Coefficients	t-statistics	Variables	Coefficients	t-statistics(*)	Variables	Coefficients	t-statistics(*)
CONSTANT	0.697	3.041	CONSTANT	1.250	5.863	CONSTANT	3.251	8.980
$\log(FBCI)_{t-1}$	0.513	7.818	$\log(DBCI)_{t-1}$	0.590	15.475	$\log(IBCI)_{t-1}$	0.643	17.964
$\Delta(\log(INT),4)_{t-1}$	-0.111	-4.608	$\Delta(\log(INT),6)_t$	0.032	2.803	$MA(INT,4)_{t-2}$	-0.015	-6.975
$\Delta(\log(PROD),4)_t$	0.611	2.200	$\Delta(\log(PROD),6)_t$	0.460	3.629	$\Delta(\log(PROD),9)_{t-6}$	0.204	3.628
$\Delta(\log(CAPA),6)_t$	0.857	6.163	$\Delta(\log(CAPA),3)_t$	0.604	4.927	$\Delta(\log(EUBC))_t$	0.515	11.201
$\Delta(\log(EUBCI))_t$	0.519	5.356	$\Delta(\log(EUBCI))_t$*(1-DU921)	0.670	7.830	$\Delta(\log(IHCI))_t$*DU982	0.400	6.266
$\log(FHCI)_t$*(DU984)	0.328	4.548	$MA(\log(DHCI),3)_t$*DU984	0.134	3.709	(1-DU982)	-0.031	-3.164
(1-DU984)	1.518	4.525	(1-DU984)	0.584	3.550	$\log(COMPET)_t$	-0.080	-2.613
$\Delta(\log(COMPET),3)_{t-3}$	-1.016	-5.911	$\Delta(\log(COMPET))_{t-1}$	-0.541	-3.275	$\log(COMPET)_t$*(1-DU961)	-0.008	-5.183
$\Delta(DEBY,2)_t$	-1.654	-4.195	$\Delta(\log(U),2)_t$	-0.219	-3.488	$MA(\log(DEBY),2)_{t-1}$	-0.243	-7.286
$POLDUM_t$	-0.013	-2.178				$POLDUM_{t-1}$	-0.024	-3.909
R^2 = 0.98			R^2 = 0.98			R^2 = 0.98		
S.E.(%) = 1.87			S.E.(%) = 1.64			S.E.(%) = 1.17		
DW = 1.78			DW = 2.17			DW = 2.22		

Note: S.E., regression standard error; DW, Durbin-Watson statistic. MA(x,y) is the (uncentred) y terms-moving average of x. (*) Heteroskedasticity consistent t-statistic.

References

Acemoglu, D. and A. Scott (1994), "Consumers Confidence and Rational Expectations: Are Agents' Belief Consistent with the Theory?", *Economic Journal*, vol. 104, No. 422, pp. 1-19.

Alesina, A. and R. Perotti (1995), "Fiscal Expansions and Adjustment in OECD Countries", *Economic Policy*, vol. 21, pp. 205-48.

Alesina, A. and R. Perotti (1997), "The Welfare State and Competitiveness", *American Economic Review*, vol. 87, No. 5, pp. 921-39.

Altissimo, F., D. J. Marchetti and G. P. Oneto (1999), "The Italian Business Cycle: New Coincident and Leading Indicators and Some Stylised Facts", ISAE, Documento di lavoro, No. 8-9.

Banca d'Italia (1999), "Public Finance Statistics in the European Union", *Supplements to the Statistical Bulletin*, No. 62, Roma.

Bovi, M., C. Lupi and C. Pappalardo (2000), "Predicting GDP Components Using ISAE Bridge Equations Econometric Forecasting Model (BEEF)", ISAE, Documento di lavoro, No. 13.

Buttiglione, L., P. Del Giovane and E. Gaiotti (1997a), "The Role of Different Central Bank Rates in the Transmission of Monetary Policy", Banca d'Italia, Temi di Discussione, No. 305.

Buttiglione, L., P. Del Giovane and O. Tristani (1997b), "Monetary Policy Actions and the Term Structure of Interest Rates: a Cross-Country Analysis", Banca d'Italia, Temi di Discussione, No. 306.

Carnazza P. and G. Parigi (2001), "Tentative Business Climate Indicators for the Italian Economy, ISAE, Documento di Lavoro, No. 17.

Chow, G. and A. L. Lin (1976), "Best Linear Unbiased Estimation of Missing Observations in an Economic Time Series", *Journal of the American Statistical Association*, No. 71, pp. 719-21.

Durlauf, S. and D. Quah (1998), "The New Empirics of Economic Growth", London Centre for Economic Performance, Discussion Paper, No. 384.

European Central Bank (1999), *Monthly Bulletin*, October.

European Commission (1997), "The Joint Harmonised EU Programme of Business and Consumer Surveys", Report and Studies, No. 6/1997.

European Commission (2000), "Italy's slow Growth in the 1990s. Facts, Explanations and Prospects", Report and Studies, No. 5/1999.

Hoover, K. D. and S. J. Perez (1999), "Data Mining reconsidered: Encompassing and the General to Specific Approach to Specification Search", *Econometrics Journal*, No. 2, pp. 167-91.

Hendry, D. F. and H. M. Krolzig (1999), "Improving on 'Data Mining Reconsidered' by K. D. Hoover and S. J. Perez", *Econometrics Journal*, No. 2, pp. 202-19.

Juster, F. T. and P. Wachtel (1972a), "Uncertainty, Expectations and Durables Goods Demand", in B. Strumpfel, J. N. Morgan and E. Zahn (eds.): *Human Behaviour in Economic affairs: Essays in Honor of George Katona*, New York, Elsevier Scientific Publishing.

Juster, F. T. and P. Wachtel (1972b), "Inflation and the Consumer"*, Brookings Papers on Economic Activity*, No. 1, pp. 71-114.

Katona, G. (1977), *Psychological Economics*, New York, Elsevier.

Locarno A. and G. Parigi (1997), "Clima di fiducia e consumi delle famiglie: movente economico o psicologico?", in *Ricerche quantitative per la politica economica*, Vol. II, Banca d'Italia, Roma,.

Lovell, M. C. (1975), "Why Was the Consumer Feeling so Bad?", *Brookings Papers on Economic Activity*, No. 2, pp. 473-79.

MacKinnon, J. G. (1994), "Approximate Asymptotic Distribution Functions for Unit Root and Cointegration Tests", *Journal of Business and economic Statistics*, April, pp. 167-76.

Pantula, S. G., G. Gonzales-Farias and W. A. Fuller (1994), "A Comparison of Unit Root Test Criteria", *Journal of Business and economic Statistics*, October, pp. 449-59.

Parigi, G. and G. Schlitzer (1995), "Quarterly Forecasts of the Italian Business Cycle by Means of Monthly Economic Indicator" *Journal of Forecasting*, No. 14, pp. 117-41.

Perotti, R., R. Strauch and J. Von Hagen (1998), "Sustainability of Public Finances", CEPR and ZEI, London.

Rossi, N. and I. Visco (1994), "Private Saving and Government Deficit in Italy", in A. Ando, L. Guiso and I. Visco (eds.): *Saving and the Accumulation of Wealth. Essays on Italian Households and Government Saving Behaviour*, Cambridge, Cambridge University Press.

Rossi, N. and I. Visco (1995), "National Saving and Social Security in Italy", *Ricerche Economiche*, No. 49, pp. 329-56.

Shapiro, H. T. (1972), "The Index of Consumer Sentiment and Economic Forecasting: a Reappraisal", in B. Strumpfel, J. N. Morgan and E. Zahn (eds.): *Human Behaviour in Economic affairs: Essays in Honor of George Katona*, New York, Elsevier Scientific Publishing.

Zollino, F. (2000), "Risparmio delle Famiglie e Sicurezza Sociale in Italia: Nuove Evidenze su Dati Aggregati", mimeo, August, Banca d'Italia, Roma.

RECENTLY PUBLISHED "TEMI" (*)

No. 381 — *The Determinants of Cross-Border Bank Shareholdings: an Analysis with Bank-Level Data from OECD Countries*, by D. FOCARELLI and A. F. POZZOLO (October 2000).

No. 382 — *Endogenous Growth with Intertemporally Dependent Preferences*, by G. FERRAGUTO and P. PAGANO (October 2000).

No. 383 — *(Fractional) Beta Convergence*, by C. MICHELACCI and P. ZAFFARONI (October 2000).

No. 384 — *Will a Common European Monetary Policy Have Asymmetric Effects?*, by L. GUISO, A. K. KASHYAP, F. PANETTA and D. TERLIZZESE (October 2000).

No. 385 — *Testing for Stochastic Trends in Series with Structural Breaks*, by F. BUSETTI (October 2000).

No. 386 — *Revisiting the Case for a Populist Banke*r, by F. LIPPI (October 2000).

No. 387 — *The multimarket contacts theory: an application to italian banks*, by R. DE BONIS and A. FERRANDO (December 2000).

No. 388 — *La "credit view" in economia aperta: un'applicazione al caso italiano*, by P. CHIADES and L. GAMBACORTA (December 2000).

No. 389 — *The monetary trasmission mechanism: evidence from the industries of five OECD countries*, by L. DEDOLA and F. LIPPI (December 2000).

No. 390 — *Disuguaglianza dei redditi individuali e ruolo della famiglia in Italia*, by G. D'ALESSIO and L. F. SIGNORINI (December 2000).

No. 391 — *Expectations and information in second generation currency crises models*, by M. SBRACIA and A. ZAGHINI (December 2000).

No. 392 — *Unobserved Factor Utilization, Technology Shocks and Business Cycles*, by D. J. MARCHETTI and F. NUCCI (February 2001).

No. 393 — *The Stability of the Relation between the Stock Market and Macroeconomic Forces*, by F. PANETTA (February 2001).

No. 394 — *Firm Size Distribution and Growth*, by P. PAGANO and F. SCHIVARDI (February 2001).

No. 395 — *Macroeconomic Forecasting: Debunking a Few Old Wives' Tales*, by S. SIVIERO and D. TERLIZZESE (February 2001).

No. 396 — *Recovering the Probability Density Function of Asset Prices Using GARCH as Diffusion Approximations*, by F. FORNARI and A. MELE (February 2001).

No. 397 — *A Simple Approach to the Estimation of Continuous Time CEV Stochastic Volatility Models of the Short-Term Rate*, by F. FORNARI and A. MELE (February 2001).

No. 398 — *La convergenza dei salari manifatturieri in Europa*, by P. CIPOLLONE (February 2001).

No. 399 — *Labor Income and Risky Assets under Market Incompleteness: Evidence from Italian Data*, by G. GRANDE and L. VENTURA (March 2001).

No. 400 — *Is the Italian Labour Market Segmented?*, by P. CIPOLLONE (March 2001).

No. 401 — *Optimal Debt Maturity under EMU*, by R. GIORDANO (March 2001).

No. 402 — *Il modello di specializzazione internazionale dell'area dell'euro e dei principali paesi europei: omogeneità e convergenza*, by M. BUGANELLI (March 2001).

No. 403 — *Seasonality and Capacity: an Application to Italy*, by G. DE BLASIO and F. MINI (June 2001).

No. 404 — *The Effects of Bank Consolidation and Market Entry on Small Business Lending*, by E. BONACCORSI DI PATTI and G. GOBBI (June 2001).

No. 405 — *Money Demand in the Euro Area: Do National Differences Matter?*, by L. DEDOLA, E. GAIOTTI and L. SILIPO (June 2001).

(*) Requests for copies should be sent to:
Banca d'Italia – Servizio Studi – Divisione Biblioteca e pubblicazioni – Via Nazionale, 91 – 00184 Rome (fax 0039 06 47922059). They are available on the Internet at www.bancaditalia.it