

Exports: Germany 1 – France 0

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Between 2001 and 2004, German exports were much more dynamic than French exports. In geographic terms, this evolution is mainly explained by a distinct advantage enjoyed by German exports in the direction of European countries. This differential in France's disadvantage results partly from a weaker world demand due mainly to the fact that French exporters are less present in the Central and Eastern European countries (CEEC). But it is also explained by the relative competitiveness losses towards the end of the period. However, French export market share losses compared with Germany have gone beyond what might be expected from the traditional determinants. The better German performance is to be seen in the two countries' respective trade balances in 2004: a surplus of € 155 billion for Germany, a deficit of € 8 billion for France.

Since 2001, French exports have shown themselves less dynamic than those of Germany

Since 2001, the average annual growth rate in volume of German merchandise exports has been 3.2 points faster than that of French merchandise exports ⁽¹⁾.

Analysis by destination, on the basis of value data, shows that the relative weakness of French exports over this period is due mainly to weaker performance in the direction of European countries (see Table 1). The gap has widened as much in the direction of euro-zone as non-euro-zone European countries. Within the euro zone, the impact of bilateral exports between France and Germany (i.e. the impact of German demand on French exports and vice versa) is relatively limited, contributing only - 0.2 of a point.

Exports to non-European countries account for only one quarter of the France-Germany differential, with half of this due to unsatisfactory French export performance in the direction of the United States and the other half to exports to Asia.

Analysis by product reveals that the France-Germany differential results above all from a lack of dynamism on the part of French exports of capital goods and, to a smaller extent, exports of intermediate goods (see Table 2).

The evolutions in world demand for each of the two countries are relatively similar

The first factor that might explain the gap between French and German export performance lies in the evolution in world demand. World demand for a given country is defined here as the weighted sum of the imports in volume of all the partner countries, the weightings used being the shares of the various markets held by the exporting country concerned (in this case, France or Germany) at a given date (1996, in this case). The result measures the exports that the country in question would have made on the basis of constant market shares. In other words, it makes it possible to apprehend the evolution in world trade seen through the distorting prism formed by the export structure of the country concerned.

Over the period 2001-2004, whereas the export volume differential between France and Germany averaged 3.2 points, the differential in the growth rates of the respective world demands was only 0.5 of a point (see Table 3). And this latter differential is itself mainly explained by the contribution of the CEEC to world demand, which is greater for Germany than for France, with German exporters much more present on this particularly buoyant market.

However, this argument based on the structure of trade is unable to explain entirely the weaker French performance, as is shown by the limited differential in terms of world demand. In other words, not only does France export less to the CEEC, but, all other things remaining equal, French exports are distinctly less dynamic than those of Germany to these same countries.

(1) The data used for France and Germany are taken from national accounts, 1995 base.

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Table 1 : Merchandise exports in value by country of destination
Average growth rate 2001-2004 of merchandise exports in value and contributions

	France	Germany	France	Germany	Difference
Total			0,9	5,0	-4,1
	Weights		Contributions		
Europe	73	73	1.1	4.0	-3.0
Euro zone	51	43	0.7	2.0	-1.4
of which Germany/France	15	11	0.1	0.3	-0.2
Europe ex Euro Zone	22	30	0.4	2.0	-1.6
World ex Europe, of which :	27	27	-0.2	1.0	-1.2
United States	8	10	-0.4	0.1	-0.5
Asia	8	11	0.2	0.8	-0.7
Other	12	6	0.0	0.1	-0.1

Sources : Customs and Bundesbank

Table 2 : Merchandise exports in value by type of product
Average growth rate 2001-2004 of merchandise exports in value and contributions

	France	Germany	Difference	France	Germany	Difference
Total				0,9	5,0	-4,1
	Weights			Contributions		
Consumer goods	15	16	-1	0.6	1.1	-0.4
Cars	15	19	-4	0.9	1.2	-0.3
Capital goods	24	27	-3	-0.6	1.2	-1.8
Intermediate goods	31	31	0	-0.1	1.0	-1.1
Other	15	7	9	0.0	0.5	-0.5

Sources : Customs and Bundesbank

Calculations by INSEE for the adjusted breakdown of the "Other" item for Germany in 2004

Note : national product nomenclatures are not necessarily totally comparable, so that these data have to be treated with caution

Decline in French price-competitiveness towards the end of the period

Apart from evolutions in world demand, evolutions in competitiveness may provide an explanation for differences in export performance.

The competitiveness indicator used in the rest of this article relates to price-competitiveness taking into account competition on third markets (for example, competition between French and German products on the Italian market). In the case of France, it relates French export prices expressed in euros to a «foreign» export price calculated as the weighted sum of the export prices of competitor countries following conversion into euros. The calculation of the «foreign» price introduces a dual weighting system: each third market is weighted in accordance with its proportion of

Table 3 : World demand for merchandise in volume
Average growth rate 2001-2004 of world demand in volume and contributions

	France	Germany	Difference
Total	3.6	4.1	-0.5
	Contributions		
Europe	2.1	2.6	-0.4
Euro zone	1.3	1.2	0.1
of which Germany/France	0.3	0.4	0.0
Europe excluding Euro Zone	0.9	1.4	-0.5
World ex Europe, of which :	1.5	1.5	-0.1
United States	0.3	0.4	0.0
Asia	0.8	0.9	0.0
Other	0.3	0.3	0.0
For the record Exports of goods in volume	1.6	4.7	-3.2

Sources : DGTPPE, Customs and Bundesbank

French exports; the various competitor countries are then weighted according to their share of the imports of each of these markets. In this case, the analysis is based on eight partner countries ⁽²⁾.

The competitiveness indicator therefore incorporates both the impact of the exchange rate of the

(2) Germany, Spain, Italy, Netherlands, Belgium, United States, United Kingdom and Japan.

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euro versus all the other currencies and the effects relating to the tendencies in export prices of the various countries taken individually.

It turns out that a distinction has to be made between two sub-periods of the past four years. In 2001 and 2002, French export competitiveness, although deteriorating under the impact of the appreciation of the euro, moved more favourably than that of Germany. Subsequently, in 2003 and 2004, this tendency was reversed in Germany's favour. Taking the four years together, the price-competitiveness of German goods evolved slightly more favourably than that of French goods.

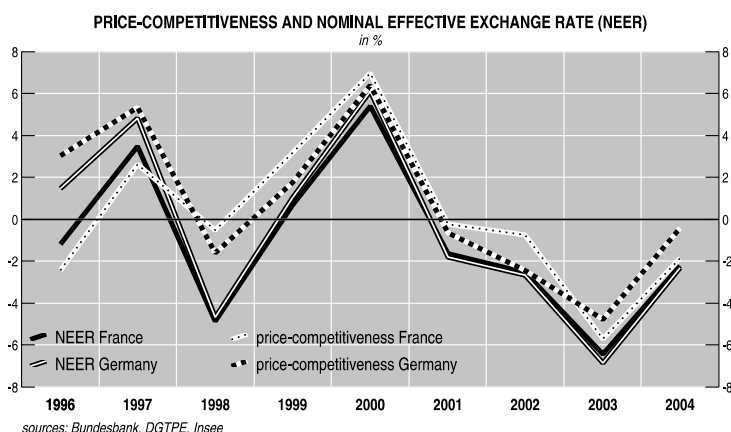
The simultaneous decline in the competitiveness of both France and Germany is mainly attributable to the evolution in the euro, which has appreciated in nominal effective terms by more than 3% per year over the past four years (see Graph 1).

It should nevertheless be noted that the competitiveness losses are smaller than the appreciation of the euro, which would seem to indicate reductions in the margins applied by exporters, limiting the price rises expressed in foreign currencies in order to preserve market share. The existence of this strategy is confirmed by the comparison between producer prices and export prices. This shows that both in France and in Germany export pri-

ces rose more slowly than producer prices over the period 2001-2004 (see Graph 2), corresponding to a tendency to compress margins.

All the usual determinants have contributed to the relative lack of dynamism of French exports compared with those of Germany but do not entirely explain the market share losses

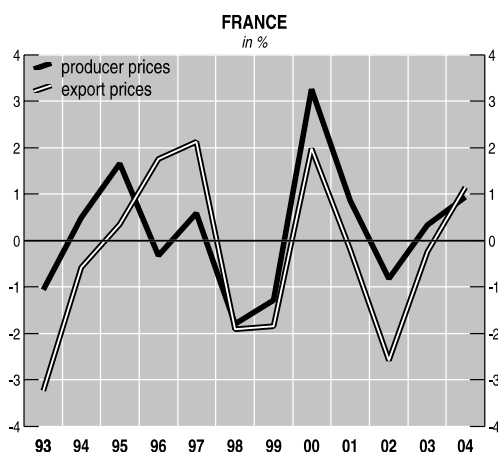
In order to provide a comprehensive picture of the Franco-German export differential, econometric estimates have been made for each of the two countries. In very standard fashion, each equation introduces as explanatory factors for export performance the elements discussed earlier, i.e. world demand and price-competitiveness (see box for the methodological details). The contribution of world demand has been broken down *a posteriori* into two separate terms: the evolution in world trade and the impact of the geographic structure of exports calculated as the difference between the evolution of world demand and the evolution of world trade. This approach offers the advantage of quantifying the respective impacts of each of these determinants on the gap observed between the growth rates of French and German exports.

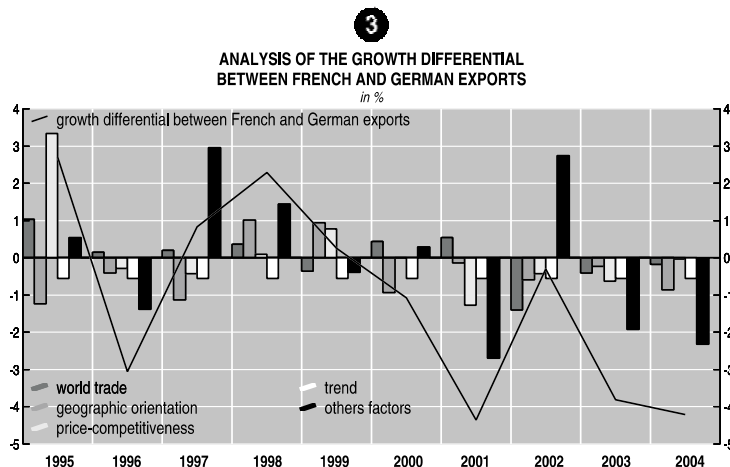


How to read Graph 1:

A rise in the nominal effective exchange rate means a depreciation in the currency, beneficial to competitiveness.

EXPORT PRICES AND PRODUCER PRICES





It then emerges that, over the period 2001-2004, France derived less benefit than Germany from the upturn in world trade, mainly because of a less favourable geographic positioning in the current context (see Graph 3). This contribution of the geographic structure of trade is re-

lated, in particular, to the larger contribution of the CEEC to world demand for German imports than for French imports (see above). However, the contribution of world demand (the combined impact of world trade and the geographic structure of exports) explains only

one quarter of the differential between French and German merchandise exports.

Added to this demand differential there are the competitiveness effects, with France losing out to Germany in comparative terms towards the end of the period. These effects were then compounded by trend market-share losses on the part of France. Each of these two factors explains one sixth of the export differential.

As a consequence, even though these usual determinants all tend to explain why French exports have been less firm than those of Germany, a major part of this differential (a good third) remains unexplained. Factors of a more structural nature, difficult to apprehend over a short period, may also have been operating in the past three years. ■

BOX: MODELS OF FRENCH AND GERMAN MERCHANDISE EXPORTS

The tests carried out on the series for exports, world demand and competitiveness show that they are integrated of order 1 in both the French and German cases. In order to take into account the nature of the series, the method used to estimate the relations between these series is the cointegration. The models used are therefore of the error-correction type. On the one hand, we have a long-term relationship between absolute values of the variables, from which temporary deviation is possible but towards which there is a tendency to return; on the other, there is a short-term relationship between variations in the variables which includes a restraining force bringing about a return to the long-term equilibrium. For the estimation of such a model, we have made use of the Johansen algorithm.

The first step consists of testing for the number of cointegration relationships existing between exports, world demand and competitiveness for each of the countries. Tables A and B show the results of the cointegration tests with five different specifications:

- Model 1: the presence of neither trend nor constant is allowed in either the long-term or the short-term relationship. This model is highly improbable since it cannot withstand modification of the normalisation of the series (for example, if it were to operate with exports expressed in billion euros, it would not work if they were expressed in million euros).

- Model 2: only a constant is introduced into the long-term relationship. This model also has little chance of being suitable, as the growth rate of the variables being studied does not have a null average.
- Model 3: one constant is introduced into the long-term relationship and another into the short-term relationship. This allows the presence of deterministic tendencies in the series expressed in absolute levels but rules out recourse to a trend in order to find the cointegration relationship. *A priori*, this is the most suitable framework for our export equations.
- Model 4: In addition to the constants in the short- and long-term relationships, this model introduces a trend in the long-term relationship. This model was to be used only if the previous one turned out to be unfruitful.
- Model 5: constants and trends are introduced into the short- and long-term relationships, which amounts to allowing the presence of a quadratic trend in the series expressed in absolute values. We therefore prefer to avoid modelling of this type which is too general and does not seem suited to the series being studied.

In the case of Germany, the trace test leads to the retention of one or two cointegration relationships at the 10% threshold (see Table A). The λ -max test leads to the retention of one relationship. As a result, model 3 is adopted with a single cointegration relationship.

Table A : Germany, test for the number of cointegration relationships

Number of relationships	neither trend nor constant (1)	constant in the long term (2)	trend in absolute levels (3)	trend in the long term (4)	quadratic trend in absolute level (5)
Statistical trace test					
0	45.032	58.64	32.754	52.970	50.282
1	15.343	28.394	13.319	24.449	23.133
2	0.159	9.318	1.026	12.089	11.010
10% thresholds					
0	21.581	31.883	26.699	39.077	31.569
1	10.347	17.794	13.308	22.946	15.941
2	2.980	7.503	2.706	10.558	2.706

Table B : France, test for the number of cointegration relationships

Number of relationships	neither trend nor constant (1)	constant in the long term (2)	trend in absolute levels (3)	trend in the long term (4)	quadratic trend in absolute level (5)
Statistical trace test					
0	35.285	43.408	18.736	41.002	36.886
1	9.524	15.932	7.888	15.965	15.751
2	0.829	5.719	1.784	5.449	5.386
10% thresholds					
0	21.581	31.883	26.699	39.077	31.569
1	10.347	17.794	13.308	22.946	15.941
2	2.980	7.503	2.706	10.558	2.706

For France, no cointegration relationship is retained in model 3 (see Table B). On the other hand, when model 4 is used (presence of a trend in the long-term relationship), one cointegration relationship is retained.

A second step involves the determination of weakly exogenous variables, i.e. those whose short-term evolutions contain no information on the long-term relationship. *A priori*, of the three variables considered (exports, world demand and competitiveness), only the first would normally be expected to exert a restraining force bringing about a return to a long-term relationship. It is therefore to be expected that the two others should be weakly exogenous.

In the German case, as expected, the weak exogeneity of world demand and competitiveness is accepted but that of exports is rejected in the case of one cointegration relationship (see Table C). This diagnosis is confirmed by estimating the model without postulating weak exogeneity: the corresponding coefficients are not significant. For France, weak exogeneity of all the variables is accepted at the 5% threshold. However, this hypothesis is rejected in the case of exports at the 11% threshold and the corresponding coefficients are significant at the 5% threshold when the model is estimated postulating weak exogeneity of the other two variables.

In the end, the two models were estimated postulating the existence of a single cointegration relationship and weak exogeneity of world demand and competitiveness. In addition, we imposed unit long-term indexation of exports on world demand (constraint accepted at the 41% threshold in the case of Germany and at the 80% threshold in the case of France).

The following relationships are then obtained:

France:

$$\Delta X = \begin{cases} 0,87 - 0,10 \Delta X_{-1} + 0,50 \Delta WD + 0,23 \Delta WD_{-1} \\ 3,18 \quad 1,08 \quad 5,93 \quad 2,46 \\ + 0,18 \Delta Compet + 0,39 \Delta Compet_{-1} \\ 1,84 \quad 3,80 \\ - 0,22(X_{-1} - WD_t) + 0,11 Compet_{-1} - 2,98.10^{-4} t \\ 3,17 \quad 3,17 \end{cases}$$

Germany:

$$\Delta X = \begin{cases} 0,01 - 0,33 \Delta X_{-1} + 0,70 \Delta WD + 0,22 \Delta WD_{-1} \\ 2,47 \quad 3,96 \quad 4,91 \quad 1,62 \\ + 0,33 \Delta Compet + 0,18 \Delta Compet_{-1} \\ 3,11 \quad 1,53 \\ - 0,09(X_{-1} - WD_t) + 0,14 Compet_{-1} - 0,08 I_{91T2} \\ 3,26 \quad 3,26 \quad 3,69 \end{cases}$$

$$R^2 = 0,45$$

Where:

X: log merchandise exports in volume

WD: log world demand for merchandise in volume

Compet: log price-competitiveness

t: trend

I_{91T2}: dummy variable taking the value 1 in Q2 1991, otherwise 0

The tests carried out on the residuals of the equations give satisfactory results. These were tests for autocorrelation of the residuals (Ljung-Box, Lagrange multiplier of order 1 and order 4, ARCH of order 2) and for normality of the residuals (test included in the CATS module of the RATS software and Jarque-Bera test). In the German case, the CATS test for normality is not very conclusive (the normality hypothesis is accepted only at the 3% threshold) but the Jarque-Bera test is passed at the 11% threshold and the ARCH test seems to indicate the presence of autocorrelation of the residuals but this

Table C : Tests for weak exogeneity

Number of cointegration relationships	5% thresholds	Exports	World demand	Competitiveness
Germany				
1	3.84	6.34	1.73	0.79
2	5.99	10.75	4.37	9.75
France				
1	3.84	2.65	0.02	1.23
2	5.99	5.46	0.04	5.44

hypothesis is rejected at the 15% level at least by the other tests. In the French case, the normality tests are passed at the 90% threshold and the other tests lead to rejection of the autocorrelation hypothesis at the 10% threshold at least, apart from the Lagrange multiplier test of order 4 which rejects this hypothesis only at the 1% threshold.

Given the better positioning of the German product range, it may seem surprising that the long-term price elasticity of German exports is greater than for France. Note should nevertheless be taken of the presence of a negative trend in the evolution of French exports which is not seen in the German case and which reflects a trend loss in market share as a result of the strengthening of competition from new sources, notably the emerging countries. It is also

noticeable that German foreign trade reacts more rapidly than French trade to changes in the international economic situation.

Over the period 2001-2004, both France and Germany benefited from the upturn in world trade (*see Graph A*) but this benefit was derived earlier in the case of Germany. However the benefit derived by France was only partial in that France was handicapped by a geographic structure of exports that was unfavourable in the present context. Moreover, over the period 2003-2004, it is noticeable that the impact of competitiveness losses due in particular to the appreciation of the euro was more marked for France than for Germany. Furthermore, German export performance went beyond what might be expected from the usual determinants, the reverse being true of France. ■

ECONOMETRIC CONTRIBUTIONS TO MERCHANDISE EXPORTS

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