Ralf Fendel* and Michael Frenkel**

The International Competitiveness of Germany and other European Economies: The Assessment of the Global Competitiveness Report

The Global Competitiveness Report of the World Economic Forum examines the relative competitiveness of economies on a broad basis of microeconomic and macroeconomic indicators. The following discussion uses the results of the Global Competitiveness Report 2004-2005 and investigates how the relative competitiveness of Germany and other European countries has developed over the recent past.

Since 1979, the World Economic Forum (WEF), Geneva, has annually published the Global Competitiveness Report (GCR). The GCR portrays the comparative strengths and weaknesses of countries and derives two comprehensive indicators of competitiveness from a number of specific indices. The number of countries included in the international comparison has steadily increased over the years and currently amounts to more than one hundred. The share of these countries in world GDP is in excess of 97 per cent.

The underlying methodology of the GCR has a solid theoretical foundation and combines publicly available information in the form of publicly available data and the results of an Executive Opinion Survey that was designed specifically for the needs of the study. This survey captures the assessment and observations of managers in the respective countries. The 2004-2005 report is based on the assessment of 8,729 companies worldwide, which corresponds to an average number of 80 participating firms in each country included in the study.[1] Once the survey is performed, the results of the survey are combined with the publicly available data (on, for example, total government deficit and expenditure on research and development) to derive rankings on a number of different aspects (indicators) of competitiveness. The findings for the majority of these competitiveness indicators are then used to derive two main indices which ultimately represent – in a condensed form – the central results of the Global Competitiveness Report. These two indices are the *Business Competitiveness Index (BCI)* and the *Growth Competitiveness Index (GCI)*.[2]

* Assistant Professor, Otto Beisheim Graduate School of Management, Koblenz, Germany.

** Professor of international economics, Otto Beisheim Graduate School of Management, Koblenz, Germany. Both authors are contributors to the World Competitiveness Report of the World Economic Forum.

[1] In Germany, a total of 65 managers answered the survey. Of these, 42 per cent came from industry, 34 from the service sector, and none from the agricultural sector. The remaining share is managers that cannot be exactly classified.

[2] The new World Competitiveness Report includes a detailed explanation of the construction of these indices. Note that the Business Competitiveness Index was previously called the Microeconomic Competitiveness Index. However, the underlying concept for the construction of the index has not been changed. Compared to last year's study, only the endowment of the economies with natural resources was added. This modification is especially relevant for developing countries.

However, the report for 2004-2005 can be regarded as a transition to a new system, because, in addition to the GCI and the BCI, a newly designed index – the *Global Competitiveness Index* – is introduced. In the future, this new index will represent the combination of the two indices. Hence, as of 2005-2006, only a single index will be used as an aggregated indicator of competitiveness.

The Growth Competitiveness Index

The Growth Competitiveness Index (GCI) is of a macroeconomic nature and aims at capturing all those factors that contribute to the future productivity growth in an economy as measured by the change in per capita income. Therefore, the focal point is on sustainable growth processes and, thus, goes beyond business cycle phenomena. The GCI is based on three sub-indices, one with respect to the level of technology within the economy, one with respect to the quality of public institutions, and one with respect to the macroeconomic environment.[3] All three sub-indices are, in turn, composed of a number of indicators which are ultimately based on the raw data of the report.

In constructing the GCI, the economies included in the report are categorised into core innovators and non-core innovators. This aims at reflecting the fact that growth processes are influenced by factors that are different for different stages of the development of an economy. In particular, the catching-up phenomenon, according to which less advanced economies can more easily reach higher levels of productivity by adopting leading technologies, can be regarded as only temporary. As an economy closes the technological gap to the advanced economies, this source of growth diminishes. Formally, the dependency of growth factors on the development stages is integrated into the GCI by giving different weights to the three sub-indices and the indicators within the technology index for core and non-core innovators. For the technology index, an additional sub-index is taken into account that captures the ability of economies to adapt new technology (the "technology transfer index"). By contrast, core innovators have a higher weight within the technology index for their ability to develop technology (the "innovation index"). The group of core-innovators includes all countries in which firms hold at least 15 registered US utility patents per one million inhabitants. A total of 25 economies – among them Germany – fulfils this criterion. Table 1 shows the ranking for the year 2004.

Table 1
Growth Competitiveness Index Ranking in 2004-2005

Growth Competitiveness Index 2004			
Rank	Country	Rank	Country
1	Finland	16	United Arab Emirates
2	USA	17	Austria
3	Sweden	18	New Zealand
4	Taiwan	19	Israel
5	Denmark	20	Estonia
6	Norway	21	Hong Kong SAR
7	Singapore	22	Chile
8	Switzerland	23	Spain
9	Japan	24	Portugal
10	Iceland	25	Belgium
11	United Kingdom	26	Luxembourg
12	Netherlands	27	France
13	Germany	28	Bahrain
14	Australia	29	Korea
15	Canada	30	Ireland

For the third time within the past four years, Finland leads the ranking in 2004-2005. The USA is in second place after being on top two years ago. Overall, the top group of countries has remained relatively unchanged compared to 2003-2004. Nine economies that ranged among the top 10 in 2003-2004 are again in the top ten. Only Australia has slipped out of this group. Germany ranks 13th as in the previous ranking. Taking Germany's ranking in 2002-2003 into account, when it was 14th, a relatively stable picture emerges for Germany for the recent past. However, being outside the top ten does not seem to be in line with the aspirations of the worldwide leading economy that Germany wants to be and is, therefore, probably a disappointment.

The Business Competitiveness Index

The Business Competitiveness Index (BCI), which was called the Microeconomic Competitiveness Index by the Global Competitiveness Report until 2002 and the Current Competitiveness Index even earlier, is of a microeconomic nature. In contrast to the GCI, which reflects the potential for future productivity growth, the BCI focuses on aspects which indicate the current

[3] For a detailed explanation of the GCI see the Global Competitiveness Report 2001-2002.

productivity situation and, thus, the current economic performance of an economy. Its approach takes into account that macroeconomic factors play an important role as the framework of economic activities in an economy, but that the current productivity level of an economy is best described by the performance of the firms operating in the economy.

Like the GCI, the BCI is a fairly condensed indicator which consists at the highest level of two microeconomic fundamentals. The latter are reflected in the two sub-indices of the BCI. The first of them is the degree of sophistication of company operations and strategy; the second indicates the quality of the microeconomic business environment. The characteristics that emerge from a survey among leading managers and enter the BCI are derived from Porter's famous diamond model and concentrate on factor markets, demand conditions, supporting industries and the context for firm rivalry (i.e. competitive structures).

Table 2 shows the BCI ranking of 2004-2005. Compared to the previous year, the USA and Finland switched positions so that the USA is now in the leading position and Finland in second place. The countries that rank among the top ten in the BCI are more or less the same countries that rank among the top ten in the Growth Competitiveness Index too. This also applies to the entire group of countries included in the report and represents a feature that is reflected in the high value of the rank correlation coefficient between the two indices, as shown in the Global Competitiveness Report. In the group of industrial countries, Hong Kong, Japan and Norway have significantly improved their position in the 2004-2005 ranking. By contrast, Italy, Malta and Iceland slipped in the new ranking, with Italy even dropping nine places. Germany moved up slightly from fifth to third place after having slipped down from number four to five in the previous ranking. Hence, Germany ranks considerably better in the BCI than in the GCI suggesting – as in previous years – that the more short-term factors of competitiveness in Germany are – in relative terms – much better than the longer-term environment for productivity increases.

Table 2
Business Competitiveness Index Ranking in 2004-2005

Business Competitiveness Index 2004			
Rank	Country	Rank	Country
1	USA	16	Austria
2	Finland	17	Taiwan
3	Germany	18	New Zealand
4	Sweden	19	Iceland
5	Switzerland	20	Norway
6	United Kingdom	21	Israel
7	Denmark	22	Ireland
8	Japan	23	Malaysia
9	Netherlands	24	Korea
10	Singapore	25	South Africa
11	Hong Kong SAR	26	Spain
12	France	27	Estonia
13	Australia	28	United Arab Emirates
14	Belgium	29	Chile
15	Canada	30	India

Modifications of the Concept of Competitiveness

As of the next report, i.e. for 2005-2006, the GCI and the BCI will be replaced by the newly developed Global Competitiveness ranking. With the formulation of a newly designed index, the Global Economic Forum takes into account that the nature of international competitiveness is subject to continuous changes. The fast development of information and communication technology and the associated decline in communication costs have led to a sharp increase in the speed of economic integration in the world. Firms are increasingly forced to base their decisions and strategies on a global perspective. This applies both to the marketing and the sourcing activities of firms. The growing number and importance of multinational enterprises mirrors these developments. Against this background, many economies feel forced to respond creatively to these challenges.

By constructing the new Global Competitiveness Index, the Global Economic Forum aims at taking these developments into account. The new index incorporates a larger number of factors than the GCI has done so far. For example, it also includes aspects of human capital quality, the efficiency of the labour and financial markets, and the quality of the infrastructure. These aspects have so far represented elements of the BCI. The authors of the Global Competitiveness Report are now convinced that the influence of macroeconomic and microeconomic aspects can and/or should no longer be separated. The rank correlation coefficient of more than 95 per cent between the GCI and the BCI can be interpreted as support for this view, as such a high value suggests that the two different indices hardly involve different information.

The calculation of the Global Competitiveness Index is relatively complex. Here, we only explain its broad structure and refer the reader to the new Global Competitiveness Report. The index is based on three main principles of, or views about, the nature of competitiveness. The first view asserts that the determinants of competitiveness are very heterogeneous. Therefore, twelve different "pillars of competitiveness" are identified. These are:

- institutions
- physical infrastructure
- macro stability
- security
- human capital
- goods markets efficiency
- labour market efficiency
- financial market efficiency
- technological readiness
- openness and market size
- business sophistication
- innovation.

The second principle or view is that economic advancement develops in steps. This view is related to the work of the historian W. W. Rostow in the 1960s. On this basis, economies are categorised according to different stages of development. Depending on the development stage, the "twelve pillars" receive different weights. Three different stages are distinguished:

- factor-driven
- efficiency-driven
- innovation-driven.

This structure is similar to the traditional distinction of economies in developing economies, emerging markets and industrial economies.

The third principle or view is associated with how economies move from one stage of development to the next. These movements do not take the form of abrupt jumps, but rather exhibit more gradual transitions. This is reflected in the calculation of the new index by gradually adjusting the weights, as economies get to the next development stage.

Table 3
Global Competitiveness Index Ranking in 2004-2005

Global Competitiveness Index 2004			
Rank	Country	Rank	Country
1	USA	16	Australia
2	Finland	17	France
3	Denmark	18	Austria
4	Switzerland	19	Belgium
5	Sweden	20	New Zealand
6	Germany	21	Luxembourg
7	Singapore	22	Israel
8	Hong Kong SAR	23	Malaysia
9	United Kingdom	24	Estonia
10	Japan	25	Bahrain
11	Taiwan	26	Korea
12	Netherlands	27	Ireland
13	Iceland	28	Jordan
14	Norway	29	Chile
15	Canada	30	Tunisia

Table 3 shows that Germany ranks 6th in the newly designed Global Competitiveness Index ranking. As no rankings for other years are available yet, the placement is difficult to interpret.

A Closer Look at Germany's Performance

As already mentioned, the new World Competitiveness Report 2004-2005 shows Germany as being considerably stronger with respect to its current productivity level (rank no. 3) than with respect to its growth potential (rank no. 13). Compared to the results of the rankings of the previous years, this does not represent a major change. To get a more detailed insight into certain features of Germany's competitiveness we take a closer look at the sub-indices. Table 4 shows the development of Germany's ranking in the sub-indices for the past three years. It reveals a mixed picture. The placement in the majority of sub-indices has remained relatively stable. Among the categories in which a slight improvement in Germany's relative position occurred is the index for the quality of public

Table 4
The German Performance in Individual Indices and Sub-indices

Index and Sub-index	Rank 2004	Rank 2003	Rank 2002
Growth Competitiveness Index	**13**	**13**	**14**
Technology-Index	12	14	12
Innovation Sub-Index	10	10	10
Information and Communication Sub-index	16	17	16
Public Institution Index	11	9	14
Contracts and Law Sub-index	9	9	10
Corruption Sub-index	9	10	17
Macroeconomic Environment Index	26	21	22
Macroeconomic Stability Sub-index	49	48	26
Country Credit Rating	8	7	2
Government Waste[1]	44	32	71
Business Competitiveness Index[2]	**3**	**5**	**4**
Sophistication of Company Operation and Strategy	1	1	2
Quality of National Business Environment	5	9	4

[1] In 2002: Level of government spending.

[2] In 2002: Microeconomic Competitiveness Index.

Table 5
Particular Strengths and Weaknesses of the German Economy

Notable Competitive Advantages Index / Indicator	Rank	**Notable Competitive Disadvantages** Index / Indicator	Rank
Growth Competitiveness Index	out of 104	**Growth Competitiveness Index**	out of 104
Judicial independence	3	Real effective exchange rate (2003)	84
Company spending on research and development	3	Access to credit	83
University / industry research collaboration	4	Recession expectations	81
		Government deficit (2003)	66
Business Competitiveness Index	out of 93	**Business Competitiveness Index**	out of 93
Nature of competitive advantage	1	Quality of maths and science education	46
Capacity of innovation	1		
Extent of branding	1	Quality of educational system	43
Stringency of environmental regulation	1	Ease of access to loans	42
Other Indicators	out of 104	**Other Indicators**	out of 104
Extent of market dominance	1	Efficiency of tax system	104
Compliance with international agreements	1	Flexibility of wage determination	103
		Hiring and firing practices	102
Prevalence of environmental marketing	1	Tax burden	99
Prioritisation of energy efficiency	1	Maternity laws' impact on hiring women	98
Prevalence of socially responsible investing	1	Subsidies for energy or materials	98
Prevalence of corporate environmental reporting	2	Ease of hiring foreign labour	91
Prevalence and effectiveness of environmental reporting	3	Extent and effect of taxation	91
Prevalence of environmental management systems	3	Pay and productivity	72
Freedom of the press	4	Agricultural policy costs	70
Importance of corporate social responsibility	4	Wage equality of women in the workplace	62
Importance of environmental management for companies	4	Private sector employment of women	58
Business impact HIV/AIDS	5	Business costs of terrorism	54
Pervasiveness of money laundering through banks	5	Organised efforts to improve competitiveness	45
Political context of environmental gains	5	Effectiveness of law-making bodies	44

institutions. However, the macroeconomic environment shows a considerable deterioration for Germany over the three-year period.

Beyond the information derived from the rankings shown by the sub-indices, additional valuable information can be derived from the results of specific aspects examined in the survey among managers and from the relative ranking of an economy with respect to some of the official data that enter the study of the World Competitiveness Report. This allows setting up a list of comparative strengths and weaknesses of the economy, i.e. a national competitiveness balance sheet. For this purpose, the aspects in which a country performs particularly well or poorly relative to the other countries of the analysis can be drawn on. The results of such an exercise are shown in Table 5.[4]

Table 5 shows that the main problems of the German economy are in the areas of tax policies and the labour markets. Although these are not totally new results, they suggest that the reforms initiated in Ger-

[4] Note that not all indicators examined by the World Economic Forum enter the calculation of one of the indices. In some cases, these aspects are only shown the listing of strengths and weaknesses of individual economies.

many in these areas may not be sufficient in the eyes of leading managers of international firms in Germany to remedy the economic problems. Rather more decisive reforms are required to secure Germany's international competitiveness and standards of living.

The Performance of Other European Countries

In order to analyse the performance of Germany's European partner countries, we split these countries into five subgroups: the large older EU economies, the small older EU economies, the economies that recently joined the EU, the countries that are EU candidate countries and the EFTA members. Table 6 shows their ranking in the Growth Competitiveness Index 2004-2005.

From Table 6 we can see that no single large EU country is among the top ten. Related to their economic importance for the world economy, this is a rather disappointing result for Europe. The worst performer among the group of large older EU members is Italy, which ranks 47th after having ranked 41st in 2003-2004. For the other countries in that group, a comparison with the 2003-2004 result indicates that their relative performance is stable, with the UK being a positive outlier (its ranking improved from no. 15 to no. 11). This relative stability of the positions also applies to the small older EU members, which partly perform much better than the bigger partner countries. The group of the new EU members shows much more dynamics in their relative performance between 2003 and 2004. Latvia, Malta, Hungary and Poland significantly dropped in the growth competitiveness ranking. However, compared to the older EU members, the new member countries – with the exception of Estonia and Poland – rank very close to each other in the 2004-2005 report. More specifically, eight out of the 10 new EU member countries rank between 32nd and 44th. Among the EU applicants, Bulgaria and Romania show the most impressing upward dynamics, while Croatia significantly dropped in the ranking. All of them now rank between the 59th and the 66th position. The EFTA members display the highest level of competitiveness. All are among the top ten performers.

Table 7 shows the ranking of the European countries with respect to the Business Competitiveness Index, which is supposed to express the microeconomic perspective of competitiveness. For the large older EU economies, the microeconomic fundamentals are significantly better than the macroeconomic fundamentals, with Spain being the only exception. Again, Italy holds the last position in this subgroup with a significant drop in the recent ranking. The group of the small older EU members again shows relatively stable positions in the BCI, with the individual country ranks also being closer to the corresponding GCI ranking than is the case for the large EU economies. The new EU members that significantly dropped in

Table 6
The Growth Competitiveness Ranks of European Economies in 2003 and 2004

Country	GCI Rank 2004	GCI Rank 2003
Large older EU members		
UK	11	15
Germany	13	13
Spain	23	23
France	27	26
Italy	47	41
Small older EU members		
Finland	1	1
Sweden	3	3
Denmark	5	4
Netherlands	12	12
Austria	17	17
Portugal	24	25
Belgium	25	27
Luxembourg	26	21
Ireland	30	30
Greece	37	35
New EU members		
Estonia	20	22
Malta	32	19
Slovenia	33	31
Lithuania	36	40
Cyprus	38	NA
Hungary	39	33
Czech Republic	40	39
Slovak Republic	43	43
Latvia	44	37
Poland	60	45
EU applicants		
Bulgaria	59	64
Croatia	61	53
Romania	63	75
Turkey	66	65
EFTA members		
Norway	6	9
Switzerland	8	7
Iceland	10	8

Source: World Economic Forum.

Table 7
The Business Competitiveness Ranks of European Economies in 2003 and 2004

Country	BCI Rank 2004	BCI Rank 2003
Large older EU members		
Germany	3	5
UK	6	6
France	12	10
Spain	26	25
Italy	34	24
Small older EU members		
Finland	2	1
Sweden	4	3
Denmark	7	4
Netherlands	9	9
Belgium	14	15
Austria	16	17
Ireland	22	21
Portugal	33	36
Greece	41	39
Luxembourg	NA	NA
New EU members		
Estonia	27	28
Slovenia	31	30
Czech Republic	35	35
Lithuania	36	40
Slovak Republic	39	43
Hungary	42	38
Cyprus	45	NA
Latvia	49	29
Malta	50	42
Poland	57	47
EU applicants		
Turkey	52	52
Romania	56	76
Croatia	72	62
Bulgaria	75	77
EFTA members		
Switzerland	5	7
Iceland	19	14
Norway	20	22

Source: World Economic Forum.

the BCI ranking are basically the same countries that dropped in the GCI: Latvia, Malta, Hungary and Poland. Among the EU applicants, Romania significantly improved its business environment and Croatia lost ground. The two latter country groups display a much higher dissimilarity in their BCI ranking than in the GCI ranking. This might indicate their different stages in the transition process. With the exception of Switzerland, the EFTA economies do not perform as well as in the GCI.

Summary and Conclusions

The Global Competitiveness Report of the World Economic Forum represents the most comprehensive study of the international competitiveness of individual countries. It uses a solid theoretical and fairly detailed concept that in its empirical application combines data from national statistics with a survey among leading managers. The authors are continuously modifying the concept on the basis of new research results. Some of the most famous economists participate in this process.

Our brief discussion of the relative performance of Germany in the new Global Competitiveness Report 2004-2005 should be used by politicians in Germany not to stop with the recent economic reforms, as much more seems to be necessary to secure productivity growth and high competitiveness in the future. Although Germany ranks third in the assessment of the current level of competitiveness (Business Competitiveness Index), which is even a slight improvement from the fifth position of last year, Germany does not belong to the top 10 countries in the assessment of the prospect of future productivity growth. More specifically, it ranks only number 13 in the Growth Competitiveness Index. This suggests that Germany needs additional economic reforms or its relative productivity level will decline. As a matter of fact, the study points to specific areas where reforms are needed. As the study was performed by some of the best economists in the world and as the World Economic Forum is not associated with any political party, it can be hoped that this assessment will not go unnoticed among policymakers.

The performance of the European economies is rather mixed. All large older EU economies are comparable to the German one: their ranking in the GCI is rather disappointing. The success of Finland, Sweden and Denmark can be interpreted as support for the effects of structural reforms. These countries are among the top performers in both indices. The current ranking also indicates that some of the new EU countries (Latvia, Malta, Hungary and Poland) as well as Croatia lost dynamics in the transition process and dropped significantly in both indices.