

Enterprise size and profitability

Data 1996



EUROPEAN
COMMISSION



THEME 4
Industry,
trade
and services

4

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Cataloguing data can be found at the end of this publication.

Luxembourg: Office for Official Publications of the European Communities, 1999

ISBN 92-828-7173-8

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Printed in Luxembourg

PRINTED ON WHITE CHLORINE-FREE PAPER

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This publication has been realised by Eurostat in close cooperation with DG II – Directorate General for Economic and Financial Affairs -, using the BACH database (Database for the harmonised company accounts). This database is managed by DG II in close collaboration with the European Committee of Central Balance Sheet Data Offices

ENTERPRISE SIZE AND PROFITABILITY

INTRODUCTION

This study analyses the relations between the size of enterprises and their profitability on the basis of the BACH database (see methodology). A number of studies have already been conducted on this subject ⁽¹⁾, but, usually for reasons of representativeness of the samples, these studies concentrate mostly on the manufacturing industry. It would therefore be interesting to analyse different sectors of activity in order to confirm or invalidate the conclusions of these studies.

According to the above studies, the main differences between SMEs (small and medium-sized enterprises) and LEs (large enterprises) in the manufacturing industry are the following:

- The operating profitability of SMEs is, as a European average, slightly lower than that of LEs. However, this conclusion does not hold for all countries, since in Spain and Italy SMEs are on the whole more profitable than large enterprises. The difference between SMEs and LEs in this respect is greater in Spain, Portugal and the United Kingdom. Furthermore, this conclusion depends on the choice of indicator ⁽²⁾.
- The financial profitability of European LEs is on average considerably higher than that of SMEs.
- An analysis of cost structure by size class reveals a clear divide between SMEs and large enterprises. In all the countries of Europe, SMEs incorporate fewer purchases of goods and services into their

production processes than LEs. On the other hand, staff costs are much higher in SMEs than in the LEs. This is explained by the fact that SMEs use less capital than large enterprises and that this capital is used more efficiently than in large enterprises. However, labour productivity in SMEs is lower than in LEs.

- European SMEs have less own funds than LEs and more often cover their funding requirements through bank loans.

In order to enrich and refine this initial statement, a number of sectors of activity have been chosen:

- two sectors of the manufacturing industry:
 - textiles, leather and clothing (abbreviated below to "Textiles"),
 - electrical and electronical equipment, office equipment and computer equipment ("Electrical");
- the construction and civil engineering sector ("Construction");
- and a service sector: hotels and restaurants ("Horeca").

The following questions have been successively dealt with:

1. What is the relation between sector of activity and performance indicators?
2. Are there effects of scale?
3. Can these effects be explained by the costs or the financial structure of the enterprises?

⁽¹⁾ "Supplement A to European Economy, N°7, July 1997" and "Comparison between the financial structure of SMEs versus the within the framework of the BACH database", Dorothee Rivaud-Danset (to be published).

⁽²⁾ If we choose an indicator showing the ratio of gross operating result to capital used, SMEs are shown as more profitable than large enterprises.

SECTORAL ANALYSIS

Only the four above-mentioned sectors have been examined, namely: Textiles, Electrical, Construction and HoReCa. The results presented are based on the latest available data. Various ratios are studied in order:

1. the *gross operating margin* (GOM) ratio, which is the gross operating profit in relation to turnover. The gross operating profit represents the enterprise's profit after paying for consumption of goods and services, other operating charges and taxes, and staff costs. This margin enables the enterprise to cover depreciation and provisions and to pay its financial charges and taxes.
2. the *value added* ratio: value added as a percentage of turnover.
3. the relative share of *staff costs*: staff costs as a percentage of turnover.
4. the *working capital requirement* (WCR) expressed in turnover-days. The WCR measures non-financial short-term assets. It is calculated as the difference between (a) amounts due from sales of goods and services plus stocks and (b) amounts owed to suppliers. It is influenced by various factors such as the sector of activity and the type of commercial relationship between the enterprise and its network of customers and suppliers.
5. the share of *financial debt*: financial debt as a percentage of the balance sheet total.

6. the relative share of *financial charges*: financial charges as a percentage of turnover.

7. the share of *own funds*: own funds as a percentage of the balance sheet total.

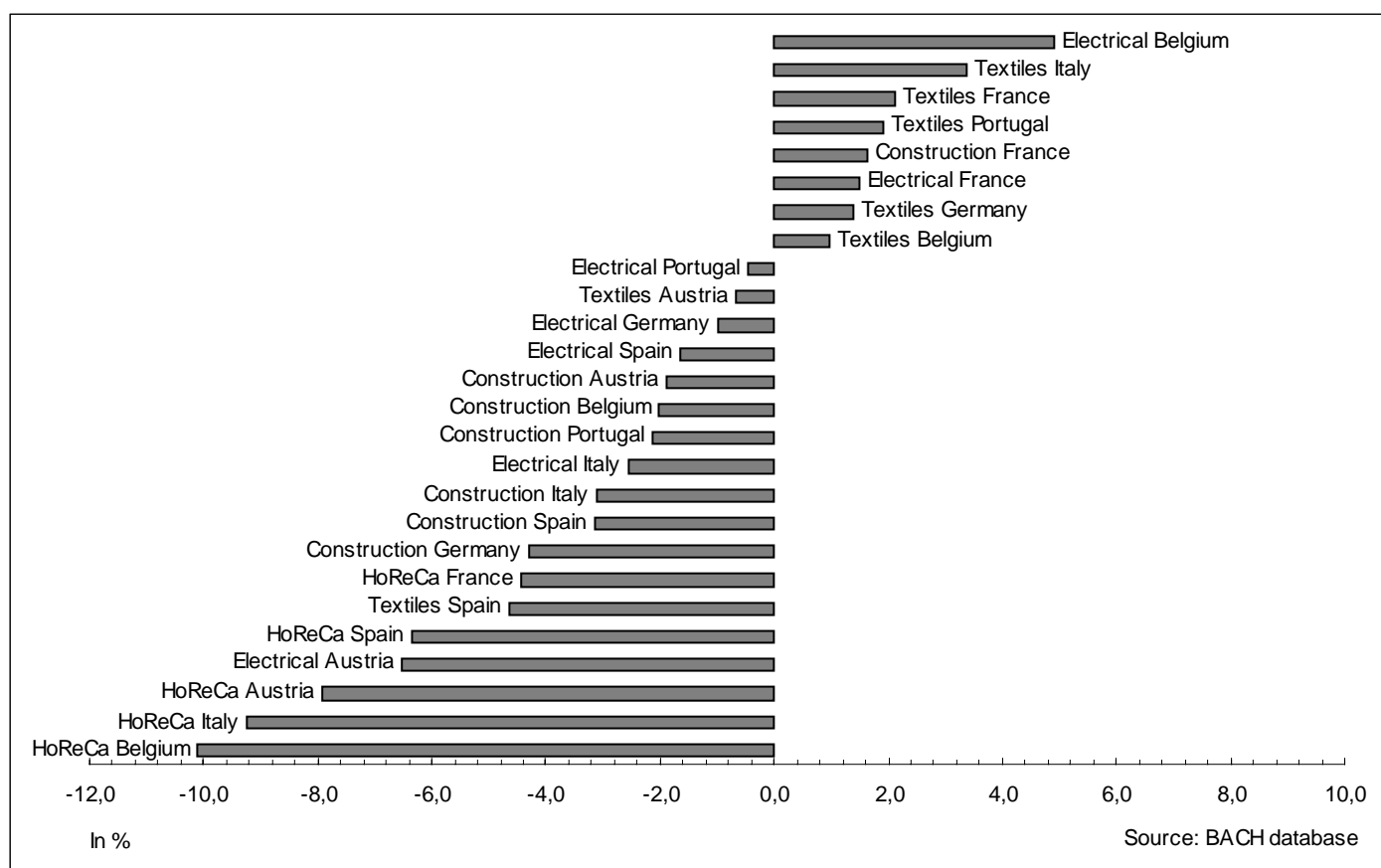
1. The gross operating margin of SMEs is on the whole greater than that of large enterprises

In contrast to the comments on the manufacturing industry⁽³⁾, the gross operating margin ratio of SMEs is on the whole higher than that of large enterprises. The ratio used here provides a reliable measurement of the **economic performance of the production tool** by supplying details of the result of the implementation of two essential elements common to all enterprises: intermediate consumption and labour.

In three of the four sectors studied (Electrical, Construction and HoReCa), the GOM ratio of small and medium-sized enterprises is, for almost all the countries, higher than that of large⁽⁴⁾ enterprises. While this difference is fairly small yet significant in the Electrical and Construction sectors (about two points), it is greater in the HoReCa sector.

⁽³⁾ Supplement A to European Economy, July 1997.

⁽⁴⁾ The definition of small and large enterprises refers here to the definition used in the BACH database.



Gross operating margin – Difference between large enterprises and SMEs 1996

The situation in the Textiles sector is, however, very different, since it is large enterprises which generally have the highest gross operating margin ratios.

However, it should be noted that there are major national exceptions to these general trends: in the Electrical sector, where large enterprises in France and Belgium have a higher gross operating margin ratio than small and medium-sized enterprises, and also in the Construction sector in France.

Size is therefore not the only determining factor: although the overall situation shows a GOM ratio which is fairly favourable to SMEs, this overall assessment needs to be adjusted if special sectoral or national features are taken into account.

2. SMEs have a higher value added ratio than large enterprises

By measuring value added in relation to turnover and measuring staff costs, it may be possible to reveal different behaviour in implementing the factors of production, depending on the size of enterprises. Two ratios will thus be examined:

- The ratio of value added to turnover, which is used to assess the production performance of the enterprise and, by extension, the volume of intermediate consumption. It should be noted that value added here means gross value added produced, before depreciation.

ENTERPRISE SIZE AND PROFITABILITY

SMEs HAVE A HIGHER VALUE ADDED RATIO THAN LARGE ENTERPRISES

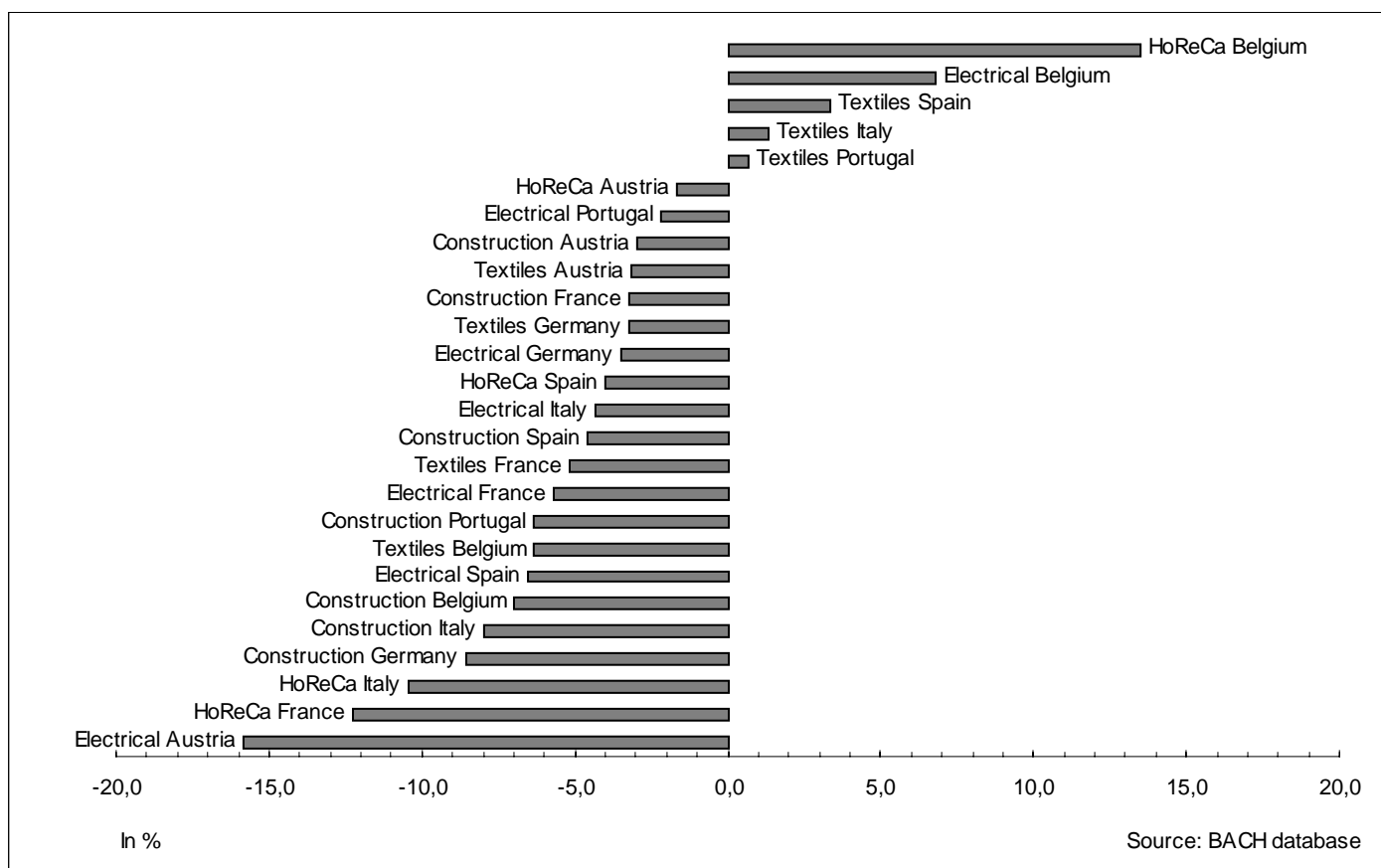
- The ratio of staff costs to turnover, which is used to assess the role of the work performed in house by the enterprise's own staff (excluding loaned or temporary staff).

The value added ratios observed vary greatly depending on the country and the sectors of activity concerned. Three major groups can be distinguished:

- the HoReCa sector, where value added ratios are high (40 % overall and up to 50 % in some cases);
- the Electrical and Construction sectors, where the ratios are lower (maximum 40 % down to as low as 25 % in some cases);
- the Textiles sector, where the ratios are particularly low (mostly less than 35 %).

Within these profiles specific to each sector, large enterprises show common features: they use much more intermediate consumption than SMEs in their production process. They probably subcontract more and purchase more semi-finished or finished products and external services (including external staff). On the other hand, SMEs create proportionately more value added, probably because they do more in house. They also have, as we shall see, relatively higher staff costs.

This difference applies to the vast majority of cases, irrespective of sector of activity, and with significant differences in the ratios: for example, the value added ratio is often five points higher in SMEs than in LEs. Only the textile sector is, again, an exception: in Spain, Italy and Portugal, large enterprises create higher value added than SMEs. This is also the case in Belgium for the HoReCa and Electrical sectors.



Value added ratio – Difference between large enterprises and SMEs 1996

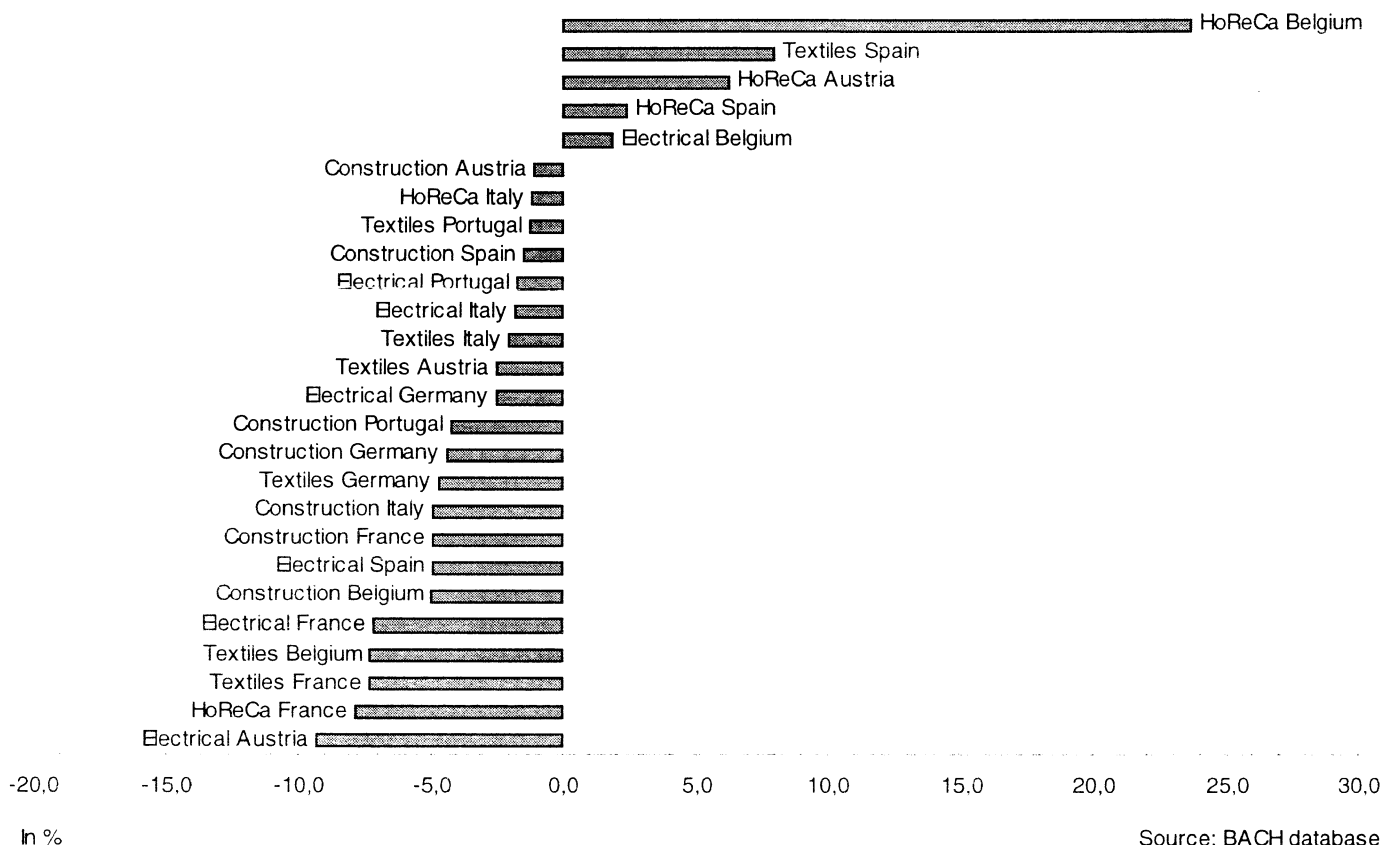
ENTERPRISE SIZE AND PROFITABILITY

ON THE OTHER HAND, **SMEs** HAVE HIGHER STAFF COSTS THAN LARGE ENTERPRISES

3. On the other hand, SMEs have higher staff costs than large enterprises

On the basis of the staff costs/turnover ratio, it can be concluded that SMEs have proportionally much higher staff costs than

LEs: in the Textiles and Electrical sectors, for example, for every 100 ECU of production, small and medium-sized enterprises generally incur about 25-30 ECU in staff costs (compared with only 15-20 ECU for large enterprises). It may be assumed that this is the result of less subcontracting and a less capital-intensive mode of production ⁽⁵⁾.



Staff cost ratio – Difference between large enterprises and SMEs 1996

For three sectors (Textiles, Electrical and Construction) the staff cost ratio is virtually always higher for SMEs, in over half the cases by more than 2 points.

There are some sectors, however, to which this does not apply: hotels and restaurants in three countries (Belgium, Austria and Spain), where staff costs are considerably higher in

large enterprises, and the Spanish textile sector.

To sum up:

- small and medium sized enterprises do more in house and, as a logical consequence, create more value added; in the industrial sectors, it can also be

⁽⁵⁾ "Comparison between the financial structure of the SMEs versus LEs within the framework of the BACH database", Dorothee Rivaud-Danet (to be published).

ENTERPRISE SIZE AND PROFITABILITY

**WORKING CAPITAL REQUIREMENTS ARE IN
INVERSE PROPORTION TO THE SIZE OF ENTERPRISES**

assumed that they are situated further upstream of the production process;

- large enterprises have less intermediate consumption and lower value added

ratios, as well as lower staff cost ratios.

The following table summarises the various combinations studied:

Sector	Textiles	Electrical	Construction	HoReCa
Characteristics of the sector				
Value added ratio	Low (high intermediate consumption)	Low (high intermediate consumption)	Fairly high	High
Staff cost ratio	Low (20-25 % of operating revenue)	About 30 % of operating revenue (with differences between countries)	Variable (large differences between countries)	High
Operating surplus ratio	Medium	Medium	Low	High
Ranking of enterprises within the sector, according to size (measured by gross operating surplus ratio)				
	Clear advantage to large enterprises	Small advantage to SMEs, with exceptions	Clear advantage to SMEs	Considerable advantage to SMEs

4. Working capital requirements are in inverse proportion to the size of enterprises

After this study on operating costs, we shall endeavour, by examining the working capital requirement, to measure the ability of enterprises to perform a number of operations inherent in their activity:

- conversion of raw materials stocks into production,
- conversion of production into turnover, i.e. into invoices,
- conversion of invoices into cash.

On the whole, it is in the interest of enterprises to keep their working capital requirement as low as possible. The faster they pass through these various stages, the more financial costs enterprises save, since they shorten the successive periods during

which they must (1) advance funds for purchasing the goods needed for production, (2) stock this production prior to selling it, and (3) wait for payment from customers.

It should be noted that in many European countries these payment periods can penalise firms considerably, but it is also true that they themselves are granted payment periods by their suppliers.

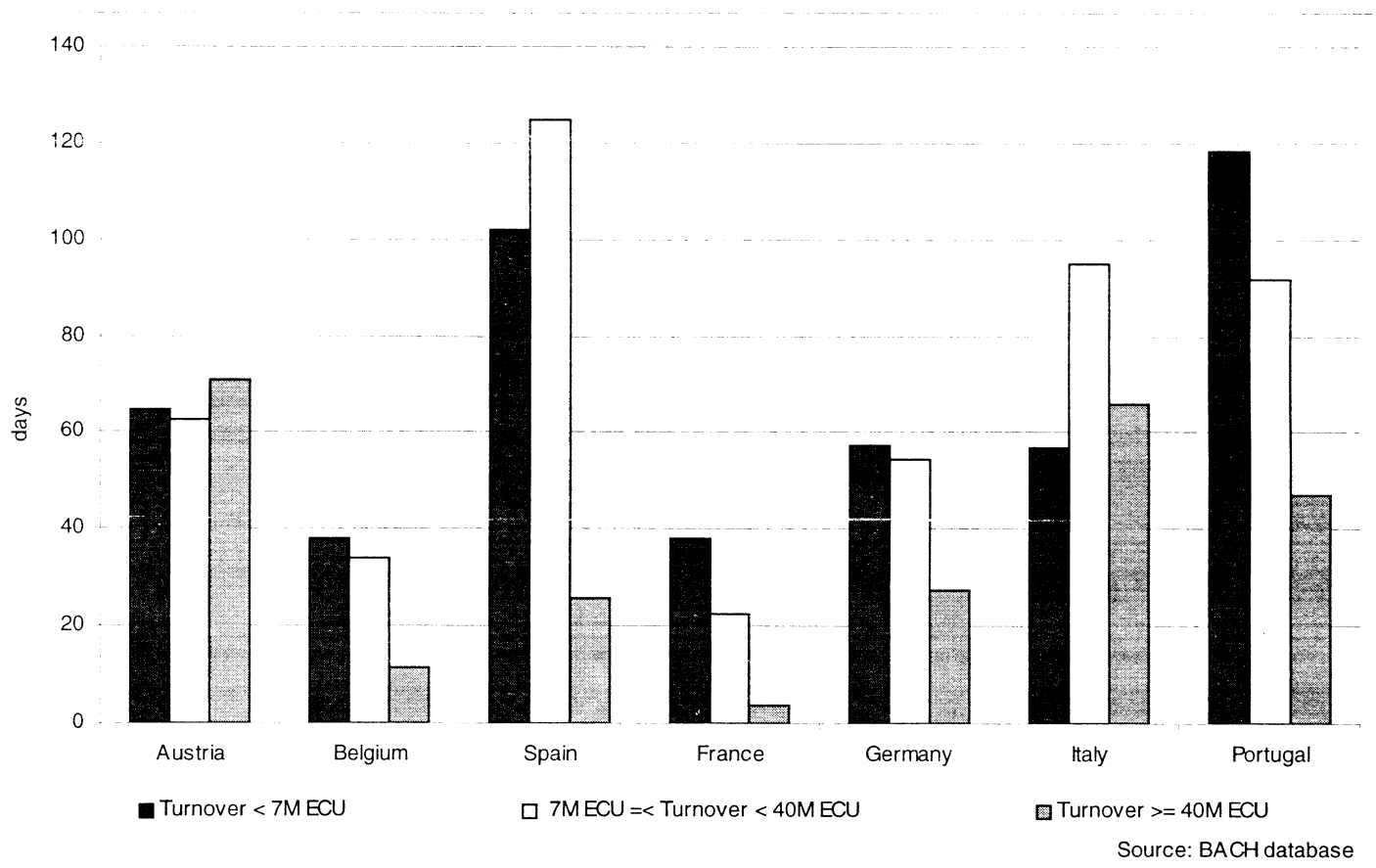
The working capital requirement is used to assess how enterprises manage all these operations. This indicator reflects both their internal organisational skills (stock management, production rate, etc.) and their favourable or less favourable position vis-à-vis their trading partners (customers and suppliers). This indicator is obviously less meaningful for service activities (which do not involve stocks of products), so it has not been calculated for the HoReCa sector.

ENTERPRISE SIZE AND PROFITABILITY

WORKING CAPITAL REQUIREMENTS ARE IN
INVERSE PROPORTION TO THE SIZE OF ENTERPRISES

Large enterprises have a lower working capital requirement, expressed in turnover-days, than SMEs. This may be explained by better internal organisation and by a negotiating capacity enabling them to obtain better payment conditions from their suppliers. At the same time, they can impose shorter payment deadlines on their customers. This feature should be particularly emphasised since, as we have seen, the production of large enterprises involves proportionately more intermediate

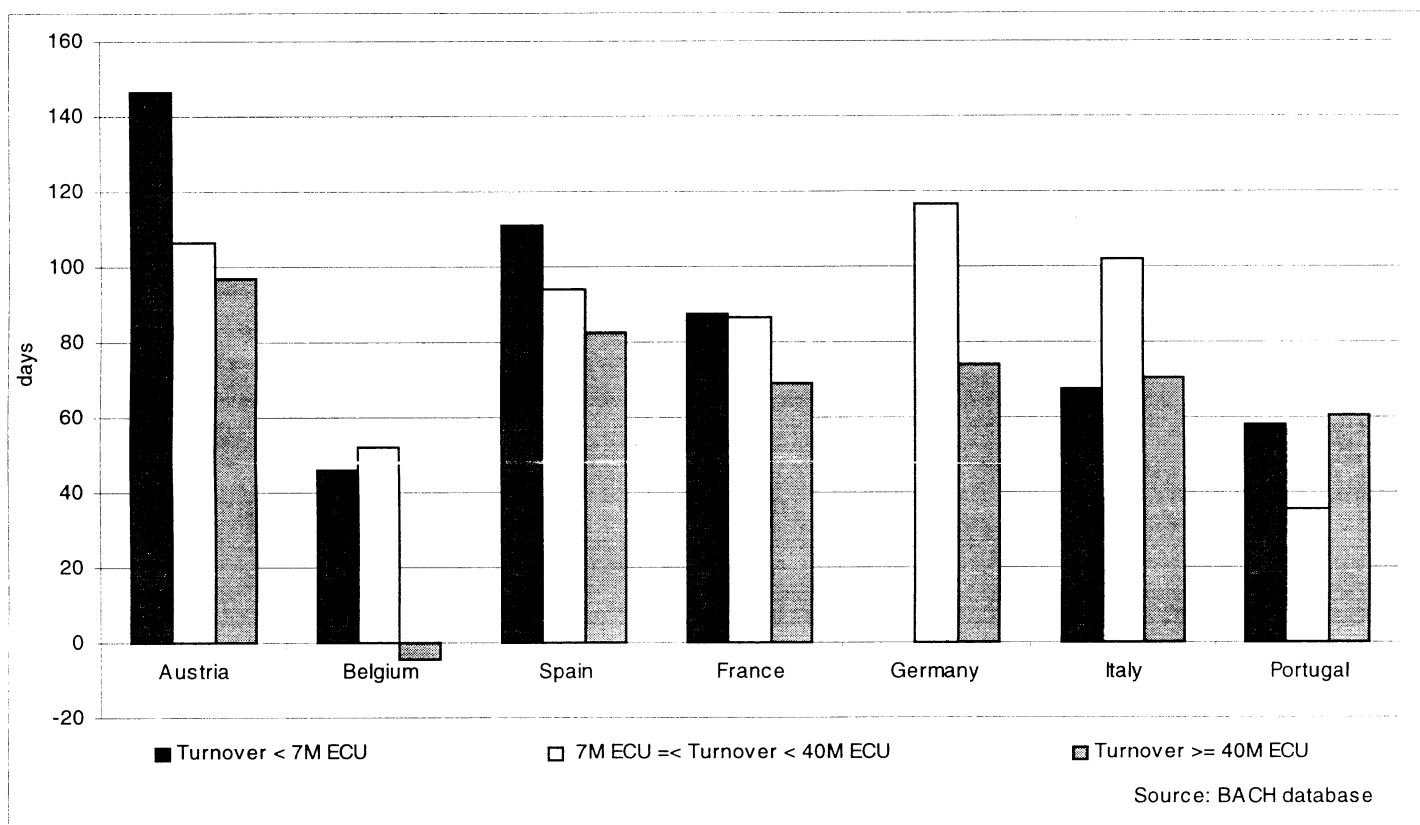
consumption than that of SMEs. We would therefore expect that they have to keep larger stocks and consequently have to finance a larger working capital requirement. The figures seem to show that this is not the case: large enterprises manage to offset the potential handicap of their relatively high level of purchases either by better management of their stocks or, in addition, by obtaining more favourable conditions from their customers and suppliers.



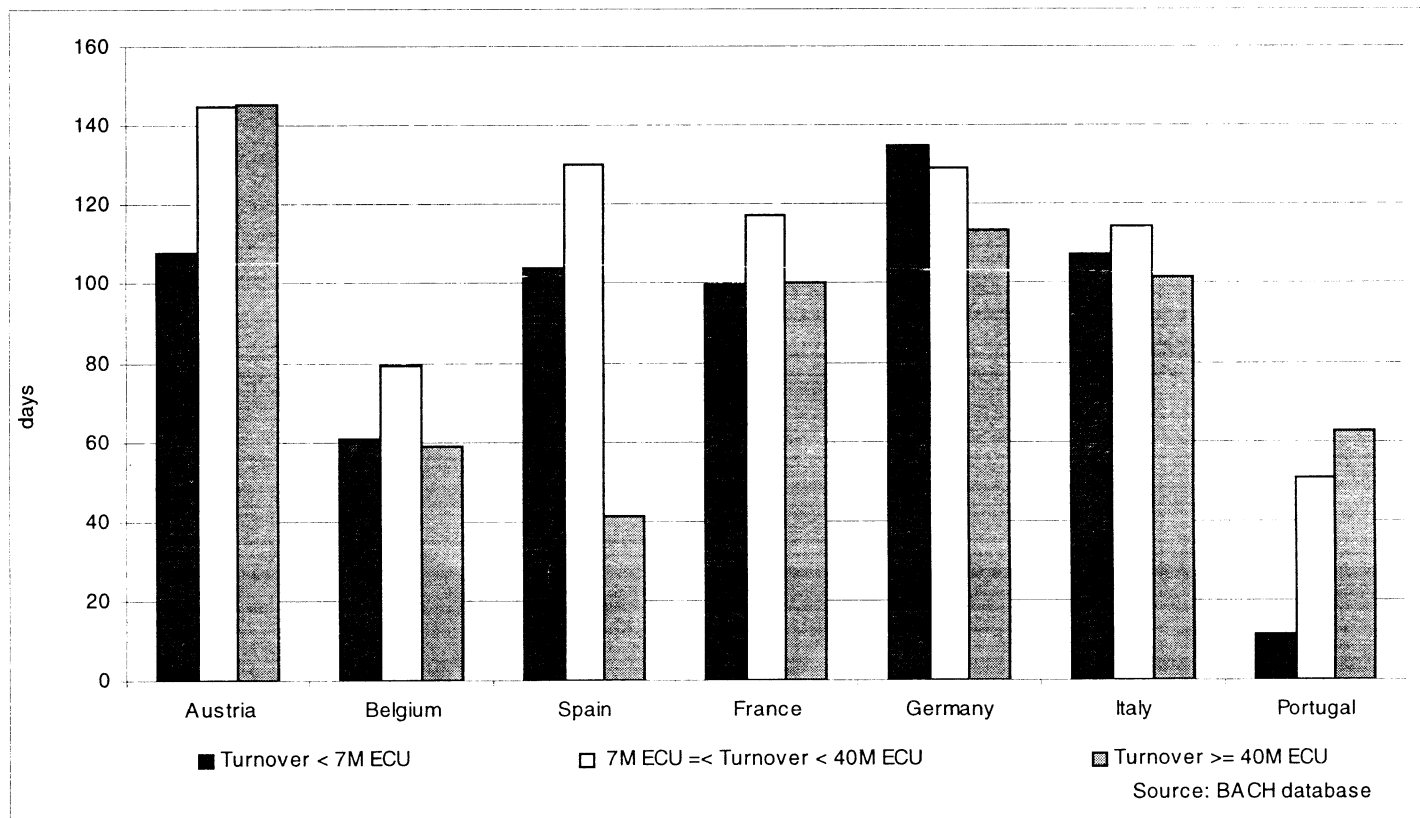
Working capital requirement – Construction 1996

ENTERPRISE SIZE AND PROFITABILITY

WORKING CAPITAL REQUIREMENTS ARE IN
INVERSE PROPORTION TO THE SIZE OF ENTERPRISES



Working capital requirement – Electrical 1996



Working capital requirement – Textiles 1996

ENTERPRISE SIZE AND PROFITABILITY

RELATIVE TO THE BALANCE SHEET TOTAL,

FINANCIAL DEBT IS HIGHER IN SMALL AND MEDIUM-SIZED ENTERPRISES

Irrespective of their size, it can be seen that in 1995 enterprises had to finance working capital requirements which could vary considerably, since they ranged from 90 days' turnover to 200 days' turnover. There can be large differences between the sectors: between about 60 and 140 days in Textiles and between 40 and 100 days in the Electrical sector. In Construction it is slightly lower (between 20 and 100 days), since this sector is characterised by large advances and accounts received which enable enterprises to reduce their working capital requirement.

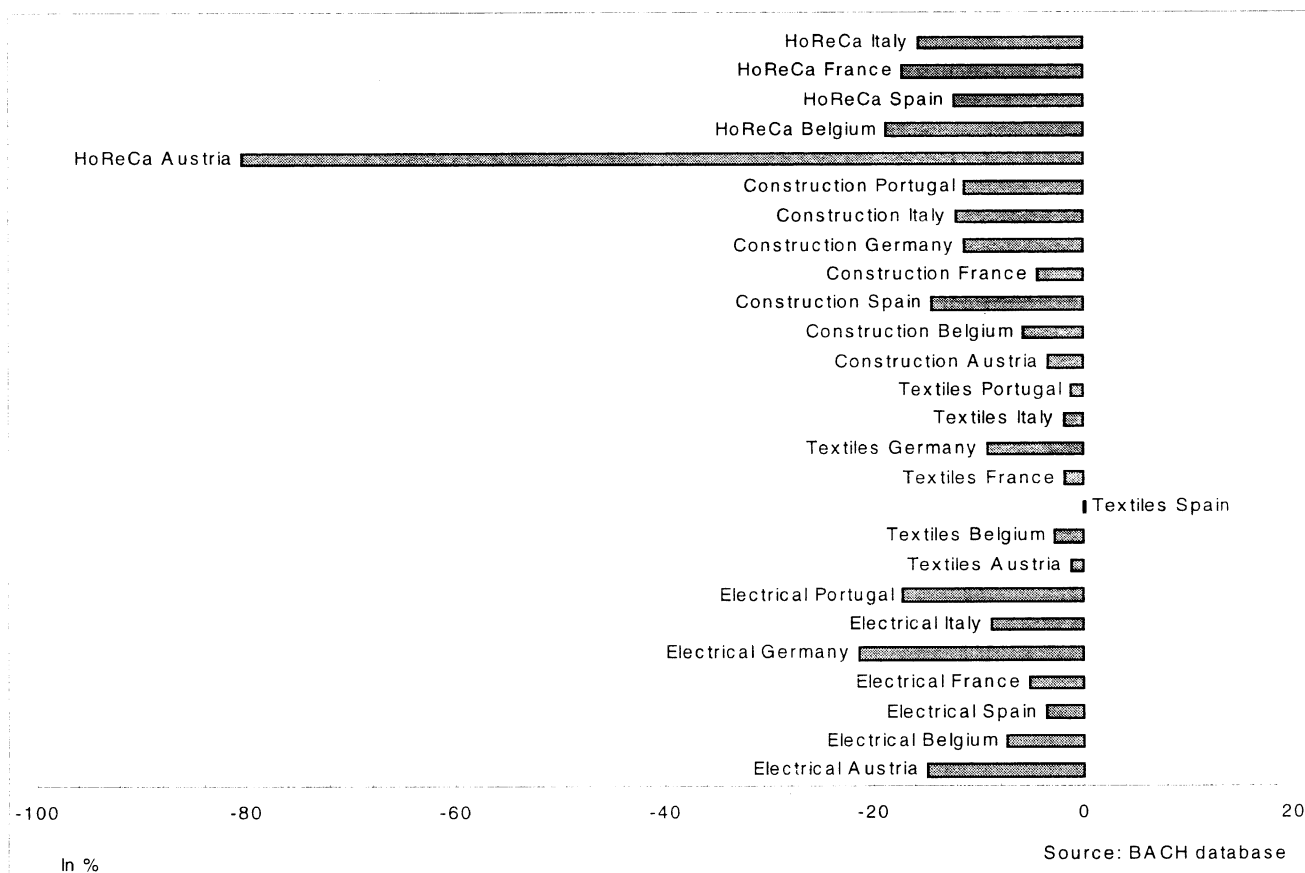
It would seem that large size enables firms to obtain more favourable conditions, since the working capital requirement of large enterprises is in most cases lower than that of SMEs: on average they do not show working capital requirements of more than:

- 70 days in Construction, compared with 105 days for SMEs.
- 90 days in the Electrical sector, compared with 140 days for SMEs.

In contrast, the situation in the Textiles sector is more nuanced, since in some countries the working capital requirement increases as size increases: this is the case in Austria and Portugal and, to a lesser extent, in France.

5. Relative to balance sheet total, financial debt is higher in small and medium-sized enterprises

The indicator used here measures the share of financial debt - whether short-, medium- or long-term - in the balance sheet total. It thus includes long-term resources used to finance capital investment and short-term resources intended to cover cash-flow requirements.



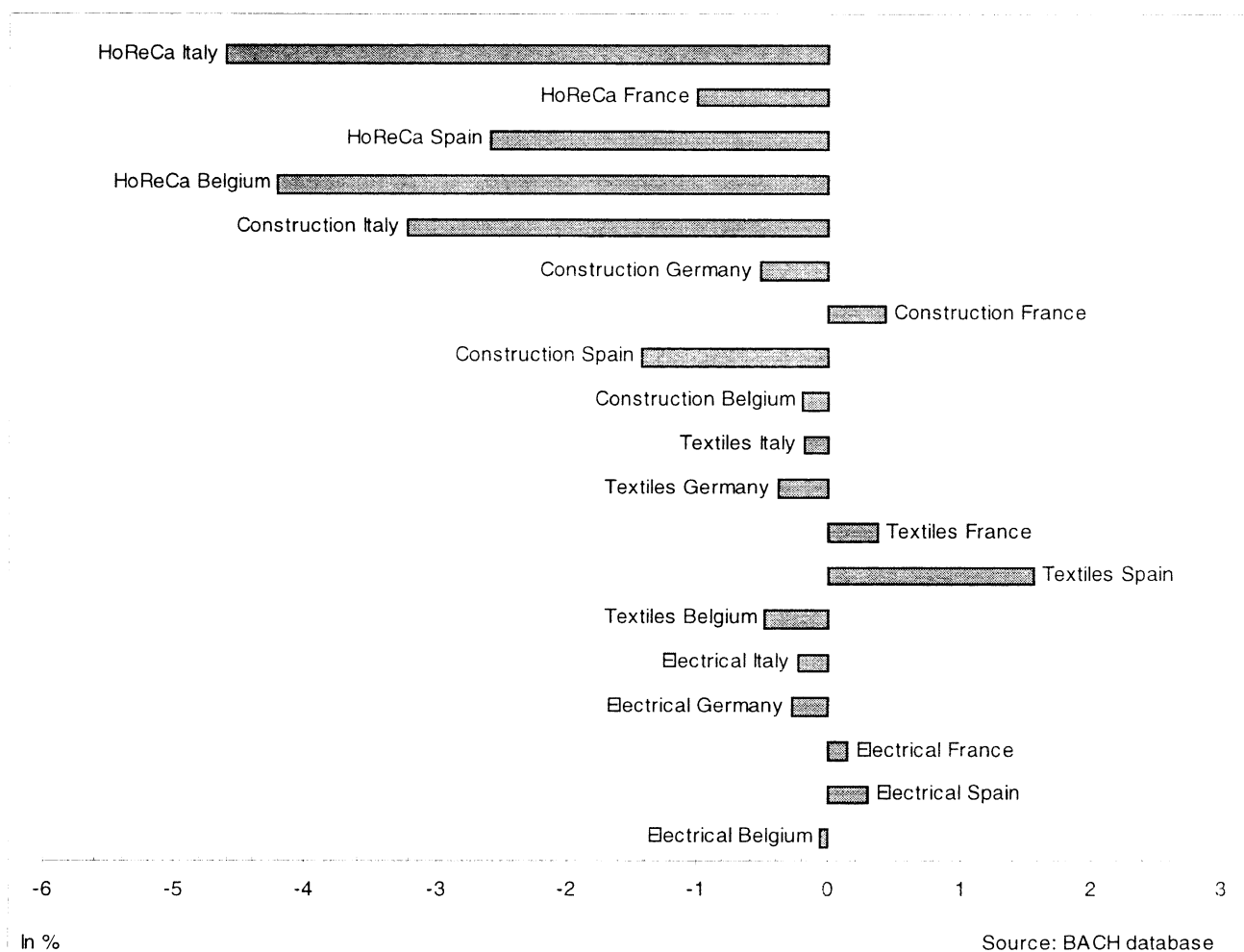
Financial debt – Difference between large enterprises and SMEs 1996

The comparison between large and small and medium-sized enterprises shows that SMEs are much more indebted than large enterprises. Whatever the sector of activity studied, the share of financial debt in the balance sheet total of SMEs is much greater than that of large enterprises.

This is a particularly pronounced feature in the Electrical, HoReCa, and Construction sectors. It is both more uncertain and less pronounced in the Textiles sector.

6. SMEs therefore incur proportionately higher financial charges than large enterprises

Apart from a few rare cases, which are mainly concentrated in France and Spain in the Electrical and Textiles sectors, the ratio of interest charges to turnover is more favourable to large enterprises than to SMEs. The differences are particularly great in the HoReCa sector - between -1 and -5 % - and in the Construction sector - between -0.5 and -2 %. In contrast, the differences are smaller and less pronounced in the Textiles and Electrical sectors.



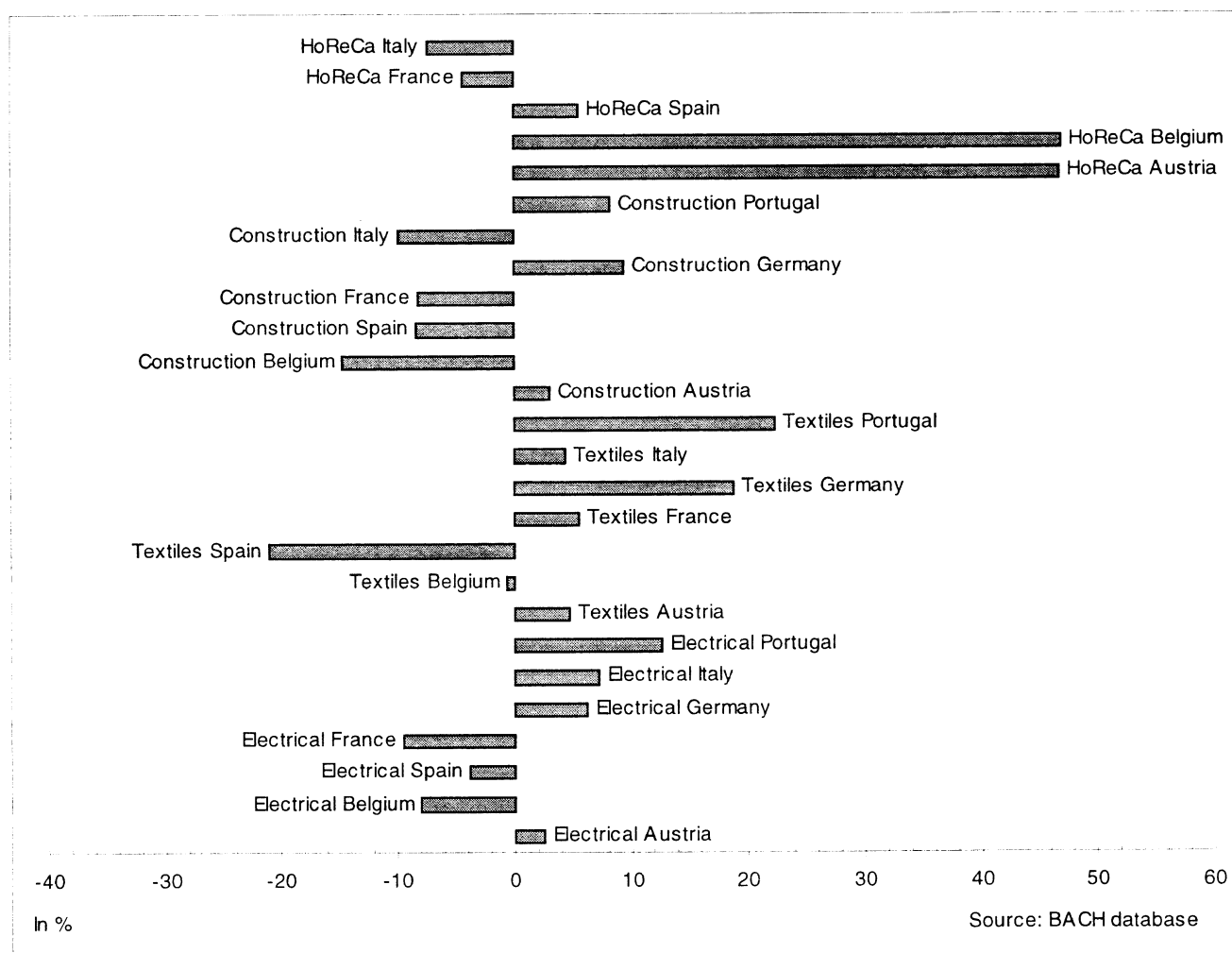
Financial charges – Difference between large enterprises and SMEs 1996

7. SMEs have less own funds than large enterprises

Own funds serve various purposes in an enterprise. On the one hand, it is used to guarantee the solvency of the enterprise. It is a safety reserve against unforeseen events which can affect the development or even the existence of the enterprise, e.g. recession in its main markets or loss of a major customer. On the other hand, the level of own funds determines the degree of independence of the enterprise vis-à-vis lenders. When an enterprise has a sound capital base, it is favourably placed for negotiating good loan

terms from banks, since the risk of default is regarded as small. Lastly, for newly created enterprises, which generally do not generate enough self-financing to cover their investments, an insufficient initial input of own funds is a major obstacle to investment.

The level of own funds thus depends on various factors: the resources which the shareholders initially put into the enterprise, any additional capital they have been able to put in, and the policy pursued regarding the allocation of profits to reserves (or the distribution of profits). The last factor is, of course, closely bound up with the profits achieved by the enterprise.



Own funds – Difference between large enterprises and SMEs 1996

On the whole, the share of own funds in the balance sheet total of large enterprises is mostly greater than that of SMEs.

Depending on the sector, however, the situation varies:

- In the Textiles sector, large enterprises are shown to have a larger capital base than SMEs. The differences range from 5 % to 20 % between large enterprises and SMEs. The only exception is Spain, where SMEs have considerably more own funds than large enterprises.
- In the Electrical sector, the situation seems less clear-cut. In four countries out of seven, large enterprises are shown to have more own funds than SMEs. In contrast, in Spain, Belgium and France, the situation is the opposite, with differences of approximately 10 % in favour of SMEs.
- The HoReCa sector also presents a mixed picture. In three countries the difference is very favourable to large enterprises, since it is as much as 40 % in Belgium and Austria. On the other hand, in France and Italy SMEs have more own funds than large enterprises.
- Lastly, in the Construction sector, SMEs have generally more own funds than large enterprises.

There are many reasons for this relative under-capitalisation of SMEs compared with large enterprises and their higher level of debt. On the one hand, SMEs have problems in obtaining access to market funding, despite the European initiatives to promote capital markets specialising in SMEs. They may also be reluctant to open

their capital to outside operators. On the other hand, SMEs have different financing requirements from those of large enterprises. They need more short-term working capital, as shown by the above analysis of working capital requirements. They also tend to specialise in products, technologies and types of organisation which make for the rapid rotation of the capital used. They therefore prefer flexible and accessible means of financing, including self-financing and bank loans obtained from favoured banks with which they have a long-standing relationship.

The following conclusions can be drawn from the above analyses:

1. The structure of the profit and loss account distinguishes clearly between SMEs and large enterprises. In virtually all the sectors, the operating profitability of SMEs is higher than that of large enterprises. SMEs create more value added than large enterprises, as a result of different behaviour in implementing the factors of production. Large enterprises use more intermediate consumption than SMEs, but they have lower staff costs. This is partly explained by a higher degree of in-house production in SMEs, but also by a less capital-intensive method of production.
2. The analysis of the financing requirements linked to operation shows a clear dividing line in most of the sectors. On the whole, SMEs have a much higher working capital requirement than large enterprises. This is explained mainly by the ability of large enterprises to manage their stocks better and to negotiate more favourable payment deadlines with their customers and suppliers.

3. The only exception to this overall pattern is the Textiles sector, in which large enterprises are more profitable than SMEs. Large enterprises also create more value added, whilst in some countries SMEs have a lower working capital requirement. A specific analysis of this sector could give a better insight into these special features.
4. The analysis of the balance sheet structure shows a vaguer picture. On the whole, SMEs seem to be more indebted and to have less own funds than large enterprises. They also incur higher financial charges. However, a more thorough analysis by sector reveals major exceptions, either sectoral (in Construction) or by country (in Spain and, to a lesser extent, France). Here again, there would have to be a specific study to understand the specific structure of these sectors.

METHODOLOGY

HARMONISED ACCOUNTS DATA BANK (BACH)

BACH is a database managed and distributed by the European Commission's Directorate-General for Economic and Financial Affairs (DG II). It contains aggregated and harmonised information on the annual accounts of non-financial enterprises and covers 11 European countries, Japan and the United States. The BACH project was launched in 1986 in DG II for the purpose of analysing the financial structures and performance of European enterprises vis-à-vis their main American and Japanese competitors.

The database was developed in close cooperation with the European Committee of Central Balance Sheet Data Offices, which was set up in 1985 on the initiative of a number of central banks in order to conduct studies on European enterprises and exchange information on methods of financial analysis. A working party to deal specifically with BACH was set up within this committee. Its task is to ensure the statistical and methodological improvement of the database and its promotion among outside users.

CONTENT

Countries

The data bank currently contains information on 13 countries:

Austria (source: Österreichische Nationalbank)

Belgium (source: Banque Nationale de Belgique/Nationale Bank van België)

Denmark (source: Danmarks Statistik)

Finland (source: Statistics Finland)

France (source: Banque de France)

Germany (source: Deutsche Bundesbank)

Italy (source: Centrale dei Bilanci)

Japan (source: Ministère des finances)

Netherlands (source: Centraal Bureau voor de Statistiek)

Portugal (source: Banco de Portugal)

Spain (source: Banco de España)

Sweden (source: Statistics Sweden)

United States (source: Department of Commerce)

The data on the **United Kingdom** are taken from an external source, the DABLE database

Sectors

The data have been aggregated according to a common classification comprising 23 sectors or subsectors. Since this nomenclature is directly based on the three-digit headings of the new NACE, the corresponding NACE Rev.1 codes are given in brackets wherever possible.

Energy and water (10+11+12+23+40+41)

Manufacturing industry

Intermediate products

Mining of metal ores and primary processing (13+27.1+27.2+27.3+27.4)

Mining and manufacture of non-metallic mineral products (14+26)

Manufacture of chemicals and man-made fibres (24)

Capital goods

Structural metal products, machinery and mechanical equipment, and precision instruments (27.5+28+29.1-6+33)

Electrical and electronic machinery and appliances, office machinery and computers (30+31+32+29.7)

Manufacture of transport equipment (34+35)

Consumer goods

Food, drink and tobacco (15+16)

Textiles, leather and clothing (17+18+19)

Wood, paper and printing (20+21+22)

Other manufacturing industries not elsewhere classified (n.e.c.) (25+36)

Construction and civil engineering (45)

Distributive trades

Wholesale trade, recycling and trade intermediaries (51)

Wholesale and retail trade in motor vehicles (50.1+50.3+50.4)

Retail trade (52.1-52.6+50.5)

Hotels and restaurants (55)

Transport and communications (60+61+62+63+64)

Other services (50.2+52.7+67+70+71+72+73+74+75+80+85+90+91+92+93+95)

Size of enterprises

Three size categories are available: small enterprises (turnover less than 7 million euros), medium-sized enterprises (turnover between 7 and 40 million euros) and large enterprises (turnover exceeding 40 million euros).

Accounting data

The accounts in the BACH database comprise a balance sheet and a profit and loss account, in vertical and descending layout. For the user, the data are always presented in a structured form, i.e. as a percentage of the balance sheet total or, for the data in the profit and loss account, as a percentage of turnover. Comparisons in value terms are impossible, since the basic figures are expressed in the national currencies and are taken from non-exhaustive samples.

PRICES

Price: 2000 euros net of tax. A 50 % reduction is granted to universities. The database is free of charge to public administrations.

Subscription with annual update: 3years 3000 euros net of tax, 5 years 4000 euros net of tax.

Prices include diskettes, the user guide and BACH integrated operating software.

ORDERS

Orders should be sent to:

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Rue de la Loi, 200
B-1049 Brussels
Belgium

By fax:

(+32-2) 299.35.02

For further information please consult GD II's website:

[Http://europa.eu.int/comm/dg02](http://europa.eu.int/comm/dg02)