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Working paper 2-98

BOSCH-SIEMENS´ INVESTMENT IN SLOVENIA: MOTIVES AND OBSTACLES

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Bosch-Siemens' Investment in Slovenia: Motives and Obstacles*

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Abstract

BSHG took over the small appliances production plant (MGA) from the Slovenian Gorenje group in March 1993. This was motivated by an increased involvement in small appliances and the possibility of acquiring a production unit of known quality in a low-labour-cost region. MGA had previously produced BSHG products under license. Major obstacles to the (continued) investment process are and were differences in work ethics and a mis-match of engineering skills. These obstacles hampered transfer of R&D competences as regards both process and product innovations.

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1. Introduction and Summary

The purpose of this paper is to investigate motives for, and obstacles to, the foreign direct investment into Slovenia of the German company Bosch-Siemens Hausgeräte GmbH (BSHG in the following) . This research has been undertaken as part of the Phare ACE Project No. P95-2152-R on *'East-West Trade Bilateralism and Patterns of Foreign Direct Investment in Europe.'* The project aims to 1) test the hypothesis that East-West trade bilateralism as lain down in the Association Agreements has tended to concentrate FDI in the EU, thus discriminating against the CEEC as a location for value-added activity; 2) refine the hypothesis by studying how different motives for FDI interact with rule-of-origin requirements to affect location decisions; and 3) analyse the impact of East-West bilateralism on FDI in the CEEC from non-European investors, especially with respect to the development of domestic supplier industries. The present paper should primarily be seen as a contribution towards the two first goals, but may also serve as part of a benchmark for comparison with non-European investors to contribute towards the third goal.

The main body of the analysis is based on the Philipp Schröder's interview with staff at BSHG, Munich. The interview in turn was based on a modified version of a questionnaire prepared by the coordinator of the project, Jochen Lorentzen. The questionnaire was designed to provide basic information about the investing firm and the investment, about its motives for investing, about obstacles met in undertaking the investment, and about its global strategy. The information about its global strategy includes data on the vertical relations of the investment, on its integration into the global network of the investing firm, on decision making, and on technology transfer.

BSHG took over the small appliances production plant (MGA: Mali Gospodinjski Aparati d.o.o.) in Nazarje from the Slovenian Gorenje group in March of 1993. This was motivated by an increased involvement in the small appliances segment and the possibility of acquiring a production unit of known quality in a low-labour-cost region. MGA had previously produced BSHG products under license.

The rest of the paper is organized as follows: Section 2 describes the BSHG in terms of its production and sales profile, accounting information and investment activities. Section 3 reports the results of the interview regarding products, basic

firm information, motives for investing in Slovenia as well as obstacles to this process. Section 4 describes BSHG's global strategy in terms of vertical relationships (4.1), integration with the global network of the group (4.2), decision making (4.3) and technology transfer (4.4). Section 5 collects a number of observations about MGA seen from BSHG's point of view. Section 6 concludes.

2. BSHG: A globalizing firm

Bosch-Siemens Hausgeräte GmbH is headquartered in Munich, Germany. The company is owned fifty-fifty by Robert Bosch GmbH and Siemens AG, as a joint venture that was set up in 1967.

The *production profile* group involves the product groups indicated in Table 1.

'Small appliances' consitute the smallest segment, even though it has grown considerably during the past four years. In fact, in 1992/3 the possibility of closing the small-appliances segment was discussed, but a new managament approach ('competence centres', cf. below) reestablished profitability of the segment.

BSHG's sells under the following brand names: Bosch, Siemens, Constructa, Neff, Balay, Continental, Crolls, Gaggenau, Pitsos, Profilio, Superser and until 1995 also Gorenje. Not all product groups are marketed under all brand names, but all small appliances that are sold under one of the above brand names in Europe are produced at the MGA plant in Slovenia. The different brand names constitute an important asset for BSHG: 'Bosch' and 'Siemens' are used for up-market sales, while the other brand names are used either for lower-priced market segments or for markets in which these particular brand names are known to the customers. The latter was the reason for the continued use of 'Gorenje' that was abandoned only recently.

The distribution system is centralized with three sub-branches: Siemens-Electrogeräte GmbH, Robert-Bosch Hausgeräte GmbH and Constructa-Neff Vertriebs GmbH.

TABLE 1: BSHG PRODUCT PROFILE W. APPROXIMATE TURNOVER (bn DM)

Segment	Products	Turnover
Cooling	Refrigerators Freezers Trunks	1.0-1.5
Dishwashers	60cm 40cm Compacts	1.0-1.5
Clothing Care	Front load Top load Driers	1.0-1.5
Kitchen	Ovens Stoves Microwave Extractor hoods	1.0-1.5
Small Appliances	Vacuum cleaners Motor driven mixers, cutters,... Thermic appliances (coffee mach.s, hair driers)	0.5
Home Tech	Hot water tanks Air conditioning Ventilation	1.0-1.5
Consumer Electronics 0	TV Video Hi-Fi Multi Media	1.0-1.5

Source: Management Press Release

BSHG has subsidiaries in the following regions: Europe (Germany, France, Greece, Poland, Slovenia, Spain, Turkey), North America (North Carolina, Mexico), South America (Brazil), and Asia (China). The subsidiaries are mentioned Appendix A.

The share of the group's turnover that takes place outside of Germany is almost 50 percent, cf. Table 2.

TABLE 2: BSHG'S TURNOVER ABROAD

Year	Share of turnover abroad
1989	50%
1990	50%
1991	48%
1992	45%
1993	42%
1994	42%
1995	48%
1996	56%

In the six years from 1989 to 1995, BSHG's sales rose by 29%, from DM 6 billion to DM 7.7 bn. Wage costs have grown more rapidly: Their share of turnover is up from 21.3% in 1989 to 23.8% in 1996. BSHG's value added structure is indicated in Table 3:

TABLE 3: BSHG'S VALUE ADDED STRUCTURE

Year	V.A. as a share of Turnover	Profits as a share of V.A.
1989	24%	14%
1990	25%	16%
1991	26%	19%
1992	28%	18%
1993	28%	14%
1994	29%	16%
1995	26%	10%
1996	25%	10%

Source: Appendix C

BSHG employed 22,900 persons world wide in 1989, rising to 31,100 in 1996, cf. Table B.2 of appendix B.

During the last seven years, BSHG's rate of return has varied between 1.1% (1995) and 2.8% (1994), while the return on net capital has varied between 2.2% (1991) and 20.2% (1994). More detailed key figures are found in Appendix B.

In terms of competitors, Europe's largest manufacturer of household appliances is Electrolux of Sweden (even though its production is scattered all over the EU). Electrolux had a market share of 23% in the EU, according to UN-ECE's (1996) World Engineering Industries and Automation 1994-1996, before it acquired AEG Hausgeräte. BSHG had a market share of 14%. Other competitors include Philips' household appliance division (owned by American Whirlpool with

a European market share of 10%), French Thomson Electroménager (acquired by Elfi of Italy), French Moulinex, German Miele, and Italian Merloni. In the U.S. the largest producers are Whirlpool, General Electric, Electrolux-owned Maytag and Raytheon.

3. Questionnaire information

3.1. Basic firm information[1]

The name of the firm is Bosch-Siemens Hausgeräte GmbH (1.1.1), headquartered in Munich, Bavaria of the Federal Republic of Germany (1.1.2). The firm produces electrical and electronical consumer goods (1.1.3), cf. Table 1 above, that also gives an approximate decomposition of BSHG's sales (1.1.4).

The turnover at the time of the investment (1993) was DM 6.7 bn and today (1995) it is DM 7.7 bn (1.1.5). Other parts of the value added structure are not public information – although a decomposition has been attempted in Table 3 above and in Tables C.1-2 of appendix C. (1.1.6-7). In 1993 there were 22,500 employees; in 1995 27,300 employees. Of these 17,300 were employed in Germany and 10,000 were employed abroad. In comparison, MGA employed 520 (1.1.8).

The geographical profile of BSHG's sales is indicated in Table 4 below (1.2.1).

TABLE 4: GEOGRAPHICAL TURNOVER GROWTH POTENTIAL

Region	1995/96 Sales	Percentage of Total Sales	Ranking of Expected Growth
	mn DM	%	1-7
North America	600	7%	3
Asia/Oceania	500	6%	1
Latin America	500	6%	2
Africa	-	<1%	7
Western Europe	6,800	75%	6
CEE	50	<1%	(average:) 5
CIS	250	3%	4

Source: Interview, Annual reports

The geographical *production* profile of BSHG is that 66% of production takes place in Germany, while 1.7% takes place in Slovenia. Furthermore, production takes place in Greece, Spain, and Brazil, and now also in Turkey, the U.S., Peru and China. (1.3).

[1]This and the following sections are almost exclusively based on the questionnaire and the interview. Numbers in parenthesis refer to the particular question of the questionnaire.

3.2. Motives for investing in Slovenia

As to the motive for the investment in Slovenia, the host-country or regional market was not very important (2.1.a). Access to resources of the host-country (2.1.b) and the collection of formerly dispersed production processes (2.1.c) were contrarywise very important. Access to strategic markets was not important (2.1.d) and tax considerations (2.1.e) were not important either, but did enter inderectly via non-wage labour costs. Access to inexpensive labour was of major importance. However, in this importance was attached to non-wage labour costs (e.g. social insurance, pensions, health contributions) as much as to direct wage costs: Adjusted for assembly line productivity, the Slovenian wage level is about one third of the German level. But in addition, in round numbers German non-wage labour costs amount to 80% of wage costs, whereas they are down to 25% in Slovenia.

MGA's output was DM 40 mn in 1993 rising to DM 130 mn in 1996. Of these 95% were exported in 1993 while 99% were exported in 1996. The export markets are to be found all over the world and the share of (tangible) exports sold within the corporation is 0, since MGA's products are final end-user products. (2.2)

The fraction of inputs *imported* was close to 0% in 1993 (A) and 30-50% today (Z). However, even though 50% of inputs are imported today, they constitute a relatively small fraction of the end product's value, due to the high value added ('large production depth'). In 1993, all inputs had to be bought in the host-country and the final product had to be distributed under the Gorenje brand name. This was of course changed under the new ownership. Today, the main countries of origin of the imports are Germany (60-70%), Asia, and the rest of Europe but hardly any from other CEECs. The value of the imports of the is 10-20% of MGA's total output (Z; A = 0). The share of (tangible) imports sourced from within the corporation is and was 0. However, non-physical inputs such as know-how, marketing come from BSHG (2.3).

The fraction of sales that is realised on the host-country (Slovenian) market was 1.2% in 1993 and 1% in 1996 (in both cases DM8mn). In the rest of Central Europe, BSHG has sales of DM5mn or 0.7% (A) to 0.6% (Z), while the similar numbers for Eastern Europe are DM1-2 mn (0.02 %: A) and DM1-3mn or about (0.02%). In the CIS, BSHG managed to sell the worth of DM20mn (A) rising to DM25mn, or 0.3%. This market was a bit of a surprise: Sales have been far better than expectations due to catching-up demand and strong brand names (Bosch and Siemens). Households spend a lot on improving – especially small – household appliances. This concentration on small appliances is due to their affordability

paired with the prestige of the brand names (2.4).

The resources that was very important for the investment decision were unskilled labour for the assembly lines as well as skilled labour, inherited from the Gorenje group, and manufactured inputs, both of which any reasonably developed country can supply. Raw materials and other host-country resources (e.g. real estate, low construction costs) were notimportant (2.5).

Concerning trade agreeements/liberalisations, only the Europe (or Association) Agreeements was important in that the 'competence centre' approach (see below) might not have been profitable without it, i.e. the Slovenian location might not have been chosen. In general, the trade agreements are unimportant as long as the trade regime is liberal but BSHG follows the development. (2.6)

3.3. Obstacles to investing in CEE

The political and legal environment was perceived as a (potentially) very important problem: That goes for commitment to reform, reliability of bureaucracy, transparency of ownership, stability of government and political processes (the risk of the system), potential membership of the EU as well as the Balkan crisis. It was important that BSHG would already be present in Slovenia when the country becomes a member of the EU. (3.1)

In the economic environment, the exchange rate system, availability of information as well as quality and accessability of the infrastructure were potentially very important problems. It was emphasized that the flow of information from Slovenia was good and that in 1993, Slovenia had the best infrastructure among the CEECs. Macroeconomic conditions were unimportant as only EU-wide macroeconomic phenomena were important. The character and extent of the privatisation programmes were likewise unimportant to the investment decision.(3.2)

In the *business environment* (3.3) local and foreign competitors are unimportant because the host market is considered unimportant: A population of 3 mn does not make for a lot of sales. *Environmental liabilities* are important, but as a company policy, environmental standards live up to German requirements that are typically stricter than EU requirements and certainly stricter than host-country requirements. This policy carries a cost, but also entails moral and marketing benefits.

Protectionism is in general not important. Only EU tariffs may be of some importance since all sales go via a German central storage. EU rules of origin

or local content requirements are not important to BSHG as long as they remain 'moderate' since the inputs needed in the small appliances production either are relatively low-tech and hence can be purchased in Slovenia; or are raw materials that cannot be sourced in the EU or Slovenia; or are intermediate goods that may be sourced in the EU (Germany) or Slovenia. Since transportation costs are significant, sourcing in, say, Poland is never a strong alternative. Some 'electronic' inputs are not available in Slovenia and have to be sourced in the EU or Asia, but Slovenian suppliers get better by the day, so that more and more inputs are sourced from local suppliers due to a combination of cost advantages and communication advantages. The reason why trade barriers of one kind or the other are not important is that trade policies are perceived to be relatively liberal all over Europe. Since the wage-cost savings are to the order of 60-70%, tariffs would have to be substantial to erode this advantage. Furthermore, since the value added at MGA is considerable, most of the content will be local anyway making it easy to fulfil local content requirements. For BSHG, the only relevant tariff was the European Union's tariff on imports from Slovenia, an issue that was resolved by Slovenia's association status.

3.4. Basic information about BSHG's investment in MGA

BSHG acquired 100% of MGA from Gorenje in 1993 and has another minor investment in Poland. BSHG has invested an average of DM 10 mn per year and paid out a total of DM 30-40 mn. (4.1)

MGA represented the possibility of transferring unprofitable production to a new European competence centre (cf. below) with lower wage costs in which the production would be profitable. In addition, BSHG knew MGA as it produced BSHG products under license.

In 1992, within BSHG it was discussed whether or not to discontinue the small appliances segment as it had become unprofitable. At the same time, however, Gorenje was about to discontinue its production of small appliances due to lack of volume. This was the reason that MGA was up for sale in 1993. BSHG had the volume and MGA had the low cost to make it profitable and so in March of 1993, MGA was made BSHG's new European competence centre.

Additional incentives were geographical location, availability of skilled labour, and that some German is spoken in Slovenia. (4.2)

MGA now produces all of the BSHG group's motor-driven small white-goods appliances intended for the European market (broadly defined). In 1993, MGA's

turnover was DM 40 mn, rising to DM 130 mn in 1996. Other components of the value added structure are confidential information. MGA now employs 520 persons. Its rate of return was, is and is expected to be at the industry average, and BSHG is generally content with its performance, which is summarized in Table 5.

TABLE 5: MGA'S GROWTH IN TURNOVER AND QUANTITY

Annual growth	1993	1994	1995	1996	1997*
Turnover	5-6%	6-7%	6-7%	6-7%	6-7%
Volume	8-9%	7-8%	7-8%	8-9%	8-9%
New products' turnover	-	-	-	10-15%	10-15%

SOURCE: Management estimates; NOTES: * $\Leftrightarrow$ target; First two rows: only existing products.

BSHG is planning to continue MGA and is currently discussing whether or not to continue with new investments in Slovenia: During 1997, it is expected that MGA will reach full capacity utilisation and so further increases will entail either an enlargement of MGA's plant and/or a reallocation of part of the production to a new location. In addition, BSHG is searching for at competence centre for its thermic small appliances. One option would be to 'upgrade' MGA to include this production of thermic appliances. This may not be the obvious alternative, however. First, because BSHG finds it increasing difficult to motivate German engineers to work at the plant 'in the middle of nowhere' and Slovenian engineers that might be willing to work at MGA do not match the qualifications that MGA needs and so this competence centre may not be able to produce the state-of-the-art products and with the state-of-the-art process it deems necessary. Second, the shop floor workers are not adjusting as quickly to innovations as their German counterparts and MGA finds it difficult to attract workers from cities far away despite high wages (by Slovenian standards). BSHG sees an underlying mentality problem in this.(4.3)

MGA *does represent relocations of existing production lines* from Western Europe but not from elsewhere. Locations in Asia are not presently under consideration since transport cost, travel cost as well as communication difficulties make such locations unprofitable. MGA does not sell to other parts of the BSHG group, nor does it source material inputs from the group. However, it does source engineering know-how and the like from BSHG.

4. BSHG's Global Strategy

4.1. Vertical integration

The share of intra-firm manufacturing value added in total manufacturing value added is 42-49%, i.e. non-labour inputs' share of total sales amounted to 58% in 1989 but fell to 51-52% in the 1992-1995 period (cf. Table C.1-2 of Appendix C). BSHG's number of outside supplier is unknown, but BSHG has a long-term relationship with all of them. MGA's operating margin compared with the BSHG group's operating margin is confidential information. However, MGA represents 2% of the group's workers or 1% of its total labour costs. MGA has between 50 and 100 outside suppliers of raw materials, mostly from Slovenia and western Europe. Suppliers from CEECs are not attractive due to 1) costs of transportation; 2) their lack of flexibility in e.g. design changes and 3) their lack of cost-cutting innovations. (5.1)

4.2. Integration into BSHG's global network

MGA is not integrated in BSHG's global network. However, it is its *European competence centre* for the production of small appliances.

The European competence centres represent a new management strategy of the late 80s and early 90s. The idea is to concentrate leading competences regarding a product segment at one location: Development, know-how, intermediate goods and production connected with the product segment were to be gathered at the competence segment in an effort to increase efficiency in production and to speed up innovation, improvements and implementation of these. At a later time these European competence centres may be extended to global coverage. Right now, the building up of the MGA competence centre is hampered by problems connected to delegating the process design to MGA, – a prerequisite for a later transfer of the product design.

While reallocation of production according to the centres lead to one-off costs, the benefits were expected to be higher value added ('increased production depth'), better quality monitoring, 'pocketing of supplier profits', team-driven production and better leverage in negotiations with suppliers.

Local firms are very important suppliers representing 70% of inputs sourced, while firms in western Europe represent the remaining 30%. The latter firms typically supply packing, wrapping, manuals and machinery. Firms are not important customers – end consumers (mostly in the EU) are. (5.2)

4.3. Decision making

MGA's sourcing decisions are made by local staff. As a company policy, all core competences are transferred to the competence centre in order to motivate employees at the centre. In addition, local employees have some experience with, and knowledge of, the suppliers that served Gorenje. Price and quality are very important criteria for the sourcing decision while origin matters due to transportation costs and communication barriers. Reliability in delivery is also important. There was never a conflict between the price and quality criteria and rules of origin and local content requirements. The reson for this is that the production technique is such that r.o.o. and l.c.r. do not matter. (5.3)

4.4. Technology transfer

BSHG has transferred product technology, process technology, management know-how and development to MGA. Design is so far retained in Germany. The technologies transferred are cutting-edge but there have been severe difficulties for MGA to implement this technology. Lack of skilled workers and a different attitude to work result in some sub-optimality in the implementation of technologies, product innovations and design innovations. (5.4)

5. Location decisions

Triggered by high and increasing wage costs in Germany, many German firms relocated their production in the 80s and early 90s. A caricature of a production would then have Asia produce modular inputs, have CEE assemble them and have the EU buy the final products. This method has in BHSG's experience harmful effects on product and process innovations. BSHG finds that a better educated labour force like the German may give a firm important advantages in innovation stemming both from its better contribution to the innovative process and from its better ability to adjust to changes of technology. This means that the time lost before a new production line is in operation and running smoothly can be reduced.

Modular inputs from an Asian supplier may underprice a German competitor, but the modular nature of the input means that changes in design or production process feed through at a slower pace, meaning that the new product will be introduced later on the market. This is due to the need of more extensive, more difficult communication with the Asian supplier, who will typically be slower at

adjusting. In addition, engineering days will be lost on travelling, and it takes longer to rectify mistakes.

BSHG aims at being the market leader in the white-goods industry and this entails constant product and process innovations that must be implemented efficiently and swiftly in order to achieve a competitive edge. This is the reason why modular input sourcing in Asia and low wage costs in e.g. the CEE are less attractive. The alternative is to reduce the labour content of products i.e. to increase automation, but this requires engineers of a sort that is scarce in the CEECs. In the long run, the attractiveness of a CEE location will very much depend on developments in training and education.

Regarding MGA in particular, there is a concern that labour costs will not remain low: In the medium run wages will start to rise and productivity and qualifications are not expected to follow suit. Employees' attitude and flexibility may also not be as good in Slovenia as in Germany.

This is the reasons why Germany is discussed as a location for the extension investments needed for MCA's existing plant as well as for the new thermic small appliances competence centre. A middle way might have been to detach R&D geographically from the competence centre(s) but this would come at a loss of synergy that would outweigh the benefits.

A. Subsidiaries of BSHG[2]

Bosch-Siemens Hausgeräte Group includes the following companies (in addition to the BSHG plants):

- BS Continental S.A. Utilidades Domésticas, São Paulo, Brazil;
- BSP A.B.E. (ΑΝΩΝΥΜΗ ΒΙΟΜΗΧΑΝΙΚΗ ΕΤΑΙΡΙΑ), Athens, Greece;
- BSW Household Appliances Co., Ltd., Wuxi (Jiangsu Province), China;
- BYSE Electrodomésticos, S.A., Huarte-Pamplona, Spain with its subsidaries:
  1. Balay, S.A., Zaragoza, Spain, and
  2. BS Electrodomésticos, S.A., Huarte-Pamplona, Spain;
- EBS Home Appliances Limited Partnership, New Bern, North Carolina, U.S.A.;
- Gaggenau Werke Haus- und Lufttechnik GmbH, Gaggenau, Germany;
- Hausgerätewerk Nauen GmbH, Nauen, Germany;
- MGA Mali Gospodinski Aparti d.o.o., Nazarje, Slovenia;
- PEG Profilo Elektrikli Gereçler Sanayii, A.Ş., Istanbul, Turkey

[2] Source: Geschäftsbericht 1995

B. Key Figures for BSHG

The following key figures for the BSHG group were taken from the annual reports of 1996, 1995, 1994, 1993, 1992 and 1990. All financial statistics are measured in million German Marks (DM).

TABLE B.1: KEY FIGURES FOR BSHG (I)

Year	Turnover	Result of operations	Net income	Assets	Net Capital
1989	5,993	202.0	83.1	2,867	653
1990	6,498	256.4	132.6	3,046	714
1991	6,934	357.1	171.6	3,288	763
1992	7,008	346.2	154.3	3,339	813
1993	6,658	253.6	99.6	3,275	838
1994	6,881	320.4	190.5	3,520	943
1995	7,743	200.5	88.4	4,013	1,034
1996	8,774	209.9	111.4	4,473	1,122

Net income: Net income excluding extraordinary gains.

TABLE B.2: KEY FIGURES FOR SIEMENS (II)

Year	Wage costs	Number of employees
1989	1,276	22,900
1990	1,351	23,043
1991	1,510	24,001
1992	1,591	22,745
1993	1,606	22,491
1994	1,647	22,558
1995	1,841	27,267
1996	2,036	31,742

Note: No. of employees at the end of September. 1994-1996:

Parttime workers have been transformed into full-time equivalents.

TABLE B.3: KEY FIGURES FOR SIEMENS (III)

Year	R.o. Result (1)	R.o. Return (2)	Ret. on Net Cap. (3)
1989	1.4%	2.9%	12.7%
1990	2.0%	4.4%	18.6%
1991	2.4%	5.2%	2.2%
1992	2.2%	4.6%	19.0%
1993	1.5%	3.0%	11.9%
1994	2.8%	5.4%	20.2%
1995	1.1%	2.2%	8.5%
1996	1.2%	2.4%	9.9%

Note: (1) Rate of Result: Net income in pct. of turnover;
(2) Rate of Return: Net income in pct. of assets;
(3)Return on Net Capital: Net income in pct. of net capital.

TABLE B.4: KEY FIGURES FOR SIEMENS (IV)

Year	Net Cap. Ratio (4)
1989	23%
1990	23%
1991	23%
1992	24%
1993	26%
1994	27%
1995	26%
1996	25%

Note: (4) Net Capital Ratio: Net capital in pct. of assets;

C. Value Added Structure of Bosch-Siemens Hausgeräte GmbH

The value added structure of Siemens for the years 1993 to 1996 have been constructed on the basis of the annual reports of 1994 and 1996. It has not been possible to calculate *manufacturing* value added (MVA), since the division of wages between production, sales & distribution, and administration is unknown. All numbers are in million DM.

TABLE C.1: VALUE ADDED STRUCTURE, 1993-96

Million DM	1993	1994	1995	1996
Production	6,647	6,860	7,790	8,850
Cost of Materials	3,419	3,489	4,090	4,662
Profits from operations (net of depreciations)	253.6	320.5	200.5	210.0
Wages (incl. pensions and social contributions)	1,606.2	1,646.9	1,841.3	2,035.6
Value Added (net)	1,859.8	1,967.4	2,041.8	2,245.5
Value Added in pct. of Net Sales	28.0%	28.7%	26.2%	25.4%

TABLE C.2: VALUE ADDED STRUCTURE, 1989-92

Million DM	1989	1990	1991	1992
Production	6,137	6,442	7,058	6,982
Cost of Materials	3,583	3.612	3,854	3,616
Profits from operations (net of depreciations)	202.0	256.4	357.1	346.2
Wages (incl. pensions and social contributions)	1,275.9	1,350.9	1,509.5	1,591.5
Value Added (net)	1,477.9	1,607.3	1,866.6	1,937.7
Value Added in pct. of Net Sales	24.1%	25.0%	26.4%	27.8%