

Annual Report 1989



Table of Contents

Financial Information and Reports

This annual report accounts for the consolidated operations of the ABB Asea Brown Boveri Group in 1989. It conforms to OECD guidelines and recommendations concerning the publication of information.

Unlike ABB's first annual report in 1988, this report includes earnings per Business Segment. As a reference for the reader, comparable earnings figures for 1988 are also included on a pro forma basis.

Another novelty in this year's annual report is the separation of industrial activities and Financial Services activities in the Group's financial statements. As these two activities have different operational and financial fundamentals, this additional information should give a clearer picture of the Group's performance.

Apart from its annual report, the ABB Group publishes a six-month report and releases quarterly reports in May and November.

The ABB Group's annual report is published in English, German, and Swedish. The original English-language version is binding. All figures shown in \$ are in U.S. dollars.

The ABB annual report forms an integral part of the annual reports of the ABB parent companies, ASEA AB and BBC Brown Boveri Ltd.

In line with Swiss law, the holding company ABB Asea Brown Boveri Ltd, Zurich, publishes its own annual report. It is available on request together with a list of major Group companies. In addition, separate annual reports are published by ABB companies in Finland, Germany, Italy, Norway, Sweden, and Switzerland, as well as by the Kent group in the UK, the Fläkt group in Sweden, and by ABB Financial Services.

Financial Information and Reports	1
ABB in Brief	2
Highlights 1989	3
Key Figures	4
Letter from the Chairmen	6
President's Comments	7
Business Segments	
Power Plants	11
Power Transmission	14
Power Distribution	18
Industry	20
Transportation	23
Environmental Control	26
Financial Services	29
Various Activities	32
Research and Development	36
Board of Directors	40
Auditors	40
Group Executive Management	41
Management	42
Financial Section	
Management's Discussion – Analysis of the Group	44
Management's Discussion – Analysis of the Business Segments	50
Consolidated Income Statement	58
Consolidated Balance Sheet	60
Consolidated Statement of Changes in Financial Position	62
Principles for Consolidated Financial Statements	64
Notes to the Consolidated Financial Statements	68
Auditors' Report	74
Major Subsidiaries	75
ABB Asea Brown Boveri Ltd, Zurich	76
Proposed Appropriation of Profit	77
Auditors' Report to the Shareholders	77
ASEA Investor Information	78
BBC Investor Information	79

ABB in Brief

Group Structure

ABB Asea Brown Boveri Ltd is owned in equal parts by ASEA AB, Stockholm (Sweden), and BBC Brown Boveri Ltd, Baden (Switzerland).

ABB Asea Brown Boveri Ltd, Zurich (Switzerland), is the holding company of the ABB Asea Brown Boveri Group with approximately 1,150 companies around the world.

While the shares of ABB Asea Brown Boveri Ltd are not publicly traded, the shares of the two parent companies – ASEA AB and BBC Brown Boveri Ltd – are listed on various stock exchanges.

Scope of Business

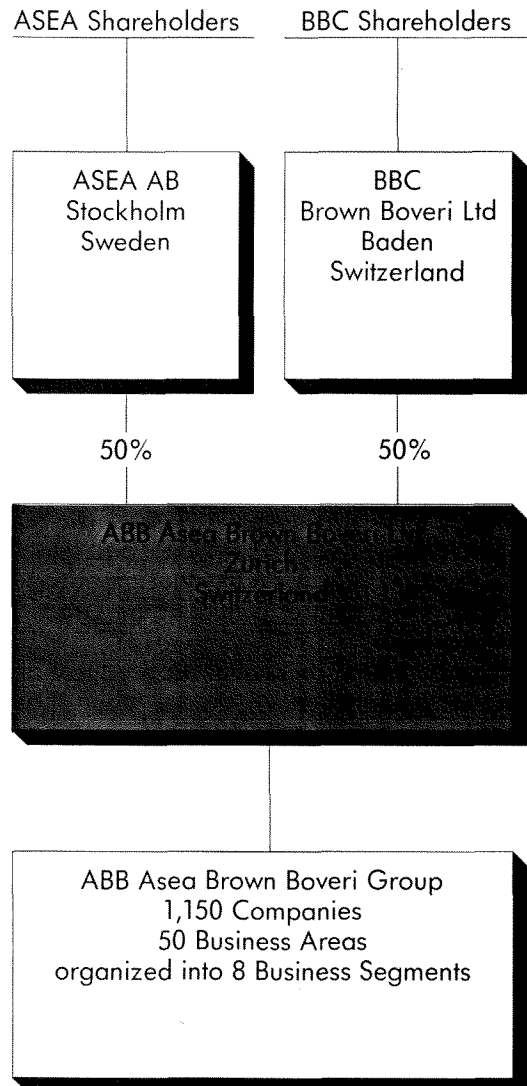
The ABB Asea Brown Boveri Group is an electrotechnical company with global operations. In 1989, earnings after financial items were \$ 922 million on revenues of \$ 20.6 billion. At year end the Group employed 190,000 people. Through the acquisition of Combustion Engineering, approximately half of ABB's sales will now be in Europe, one quarter in North America, and the rest in Asia, Australia, and the developing countries. ABB companies operate in their markets according to a philosophy of decentralization and within a framework of clearly defined global strategies and priorities for the Business Areas.

ABB develops, produces, sells, and services systems and products in a wide range of areas generally related to the production, distribution, and application of electricity.

Almost half of ABB's business is in:

- Power generation plants for primary energy – coal, gas, oil, water, nuclear;
- High-voltage transmission for electricity with products such as switchgear, transformers, relays, and cables;
- Medium- and low-voltage distribution including installation activities.

Other areas of activity are public transportation such as high-speed trains, locomotives, and urban mass transit systems. Electrical drives, process automation, oil and gas, and metallurgy are grouped together in a separate Segment. The main focus in Environmental Control is on improved indoor and outdoor air quality. ABB is also active in robotics,



Highlights in 1989

instrumentation, power lines, general contracting, superchargers, certain specialties within telecommunication, advanced plastics, and in local business operations in installation material, wholesale, and service.

The Financial Services Segment provides services in the areas of financing, leasing, treasury operations, insurance, trading, and portfolio management for companies within the ABB Group and for third parties.

Organization

The ABB Group is essentially a federation of national companies; its focus is on finding efficient solutions to specific customer problems and on exporting worldwide in specialized fields. Overall, there are more than 3,500 individual profit centers with clearly defined accountability.

ABB uses a matrix structure for its organization:

Worldwide business activities are grouped into 8 Business Segments comprising 50 Business Areas. Each carries responsibility for global strategies, business plans, allocation of manufacturing responsibilities, and product development.

Geographically, the Group is broken down into subgroups or companies in industrial countries. In the developing world, it is broken down into regions incorporating a number of countries. Company managers are responsible for operations in each country in line with the global strategies of the Business Areas.

Management

Group Executive Management comprises Percy Barnevik as President and Chief Executive Officer, Thomas Gasser as Deputy, and 11 Executive Vice Presidents; they carry individual responsibility for Business Segments, Regions, and Corporate Staffs.

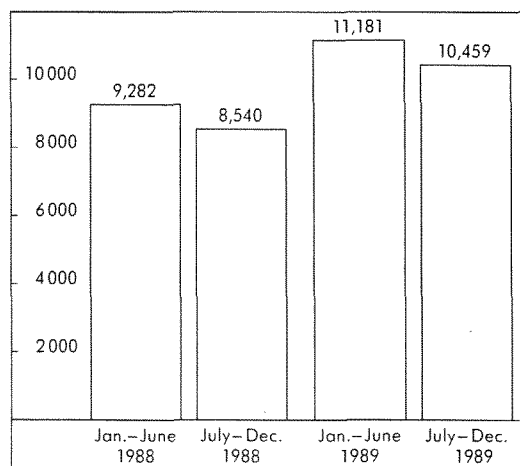
- ABB reached its strategic goal of becoming a major domestic supplier in North America. By acquiring the Westinghouse Power Transmission and Distribution activities and the Combustion Engineering group, ABB's presence in North America will increase to 40,000 employees and \$ 6–7 billion in sales.
- A number of European acquisitions and joint ventures have consolidated ABB's position in several key European markets.
- Increased global demand for investments to improve the environment as well as in energy and transportation infrastructure was a major driving force behind ABB's strong volume growth. Orders received in 1989 grew by 21% to \$ 21,640 million.
- The extensive restructuring programs initiated in 1987/1988 have led to steady improvement of earning performance. A major turnaround was achieved by the Power Transmission and Industry Business Segments. In 1989, net income for the Group increased by 53% to \$ 589 million.

Key Figures

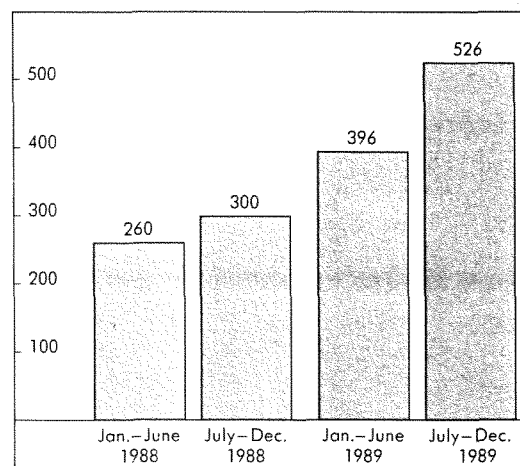
(US\$ in millions, unless otherwise stated)

	1989	1988
Orders received	21,640	17,822
Revenues	20,560	17,832
Operating earnings after depreciation	1,257	854
Earnings after financial items	922	560
Net income	589	386
Stockholders' equity	3,907	3,122
Total assets	24,156	18,965
Capital expenditure for property, plant and equipment	783	736
Capital expenditure for acquisitions	3,090	544
Expenditure for Research and Development	1,361	1,255
Operating earnings/revenues	6.1%	4.8%
Return on equity	16.8%	12.5%
Return on capital employed	17.0%	13.6%
Number of employees	189,493	169,459

Orders Received per Six-month Period



Earnings after Financial Items per Six-month Period

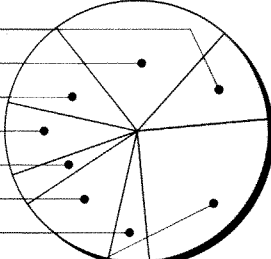


Orders Received, Revenues, and Earnings per Business Segment

Business Segment	Orders Received		Revenues		Operating Earnings	
	1989	1988	1989	1988	1989	1988*
Power Plants	3,151	2,194	2,795	2,510	219	231
Power Transmission	4,828	3,376	4,775	3,619	288	28
Power Distribution	2,644	2,522	2,516	2,480	140	106
Industry	2,292	1,966	2,019	2,047	131	22
Transportation	1,119	993	957	747	57	46
Environmental Control	3,115	2,786	2,843	2,511	130	77
Financial Services	1,422	1,065	1,446	1,046	95	74
Various Activities	5,552	5,295	5,594	5,375	341	322
Total	24,123	20,197	22,945	20,335	1,401	906
Intra-Group transactions	- 2,483	- 2,375	- 2,385	- 2,503	- 144**	- 52**
Net Total	21,640	17,822	20,560	17,832	1,257	854

Revenues per Segment (as % of Total Revenues)

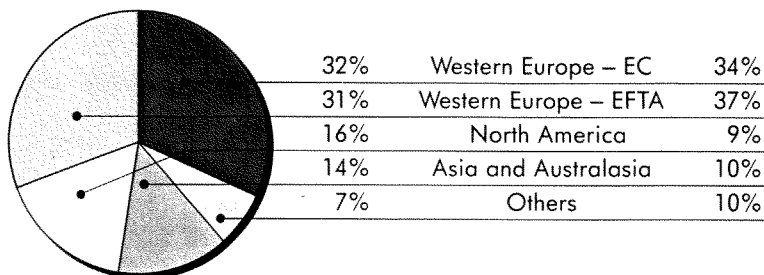
Power Plants	12%
Power Transmission	21%
Power Distribution	11%
Industry	9%
Transportation	4%
Environmental Control	12%
Financial Services	6%
Various Activities	25%



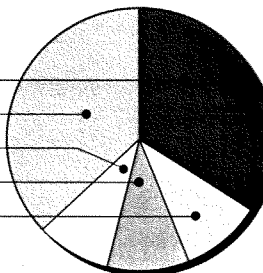
Revenues and Employees per Region

Region	Revenues		Employees	
	1989	1988	1989	1988
Western Europe – EC	6,573	5,971	64,746	61,011
Western Europe – EFTA	6,352	5,862	70,354	74,556
North America	3,251	2,115	17,121	6,231
Asia and Australasia	2,785	2,335	18,993	13,913
Others	1,599	1,549	18,279	13,748
Total	20,560	17,832	189,493	169,459

Revenues per Region



Employees per Region



* pro forma figures ** includes corporate items

Letter from the Chairmen

In its first two full years of operation, ABB has enjoyed a period of substantial growth in financial returns and sales. Although economic conditions have generally been favorable, ABB's development is primarily the result of countless internal improvement projects and a string of strategically important acquisitions and joint ventures.

Today, ABB is one of the leading global forces in the electrotechnical industry. We are well on the way to achieving the objectives which prompted the initial merger between Asea and Brown Boveri less than three years ago.

Growth in size, however, was never ABB's primary goal. Our guiding principle has always been customer satisfaction. For this we need competitive strength and leadership – in market presence, in service, in product quality, and in technology. For us this means striving for excellence in

- People: highly-qualified and motivated managers and employees with clear objectives and responsibilities. They will contribute best in a climate of leadership and openness.
- Decentralization: ABB is a highly decentralized organization. Each operating unit must be close to its customers and benefit from short lines of communication. This makes ABB responsive to its environment and fast in its decision making.
- Integration: ABB is multidomestic; we are at home in many countries. No single country contributes more than one sixth to the Group's total value added. ABB's aim is to integrate under one single roof many nationalities, company cultures, and traditions, so that the whole will benefit from the unique strengths of each part.

- Focus: ABB consciously concentrates on a number of core businesses where we want to be the low-cost producer and technology leader. Whether it is energy, environment, transportation, or automation – we see growing worldwide demand in all these core businesses. With its global economies of scale and its many domestic bases, ABB is ideally positioned to satisfy these demands.

1989 has been another year of growth, of change, and sometimes of turbulence. It is with pride and satisfaction that we note that difficult conditions have been mastered well. We are grateful for the dedication and flexibility shown and the large amount of work done by thousands of employees at all levels of the organization. The Board would like to express its sincere thanks to all those involved.



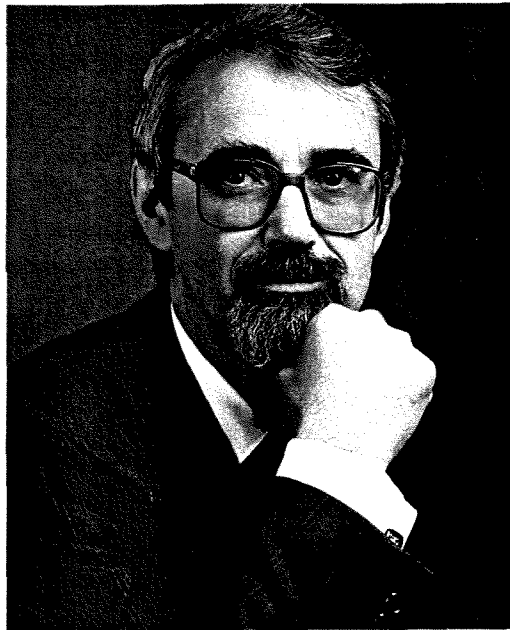
Dr. Fritz Leutwiler
Co-Chairman
ABB Asea Brown Boveri Ltd
Chairman BBC Brown Boveri Ltd

Dr. Curt Nicolin
Co-Chairman
ABB Asea Brown Boveri Ltd
Chairman ASEA AB

President's Comments

1989 has certainly been a year of implementation — as promised 12 months ago — but also a year of progress and success. Business activities and earnings developed very satisfactorily. Orders received rose by 21% to \$ 21.6 billion both through internal growth and through acquisitions. Earnings after financial income and expense grew by 65% to \$ 922 million, net income increased by 53% to \$ 589 million, and return on equity went up from 12.5% to 16.8%. Both the Power Transmission and Industry Segments showed a dramatic turnaround with, respectively, a \$ 250 million and a \$ 100 million improvement of their operating earnings from previously unsatisfactory profit positions. The Power Distribution and Environmental Control Segments also showed significant improvements. This substantial increase of profit and margins was not only important in financial but also in psychological terms. It gave a clear message to the thousands of people who have been working hard on restructurings and changes: their work has not been in vain; ABB is on the right track.

At the same time, ABB's strategic position in core business areas and important markets was substantially enlarged. ABB continued to play a leading role in restructuring the electrotechnical industry in Western Europe with a number of acquisitions and joint ventures in Italy, Spain, France, the United Kingdom, Germany, the Scandinavian countries, and elsewhere. The changes in Eastern Europe also opened up new opportunities. However, the most important strategic moves were the acquisitions of the Westinghouse T & D business and of Combustion Engineering at year end. With 40,000 employees and



Percy Barnevik
President and Chief Executive Officer

sales in North America of \$ 6 to 7 billion — a quarter of total sales — ABB is changing its character from a trans-European to a trans-atlantic company.

Merger Completed

The implementation of many hundreds of small and large projects continued at a high pace.

Important milestones were reached in Switzerland and Germany with the formation of some 40 industrial companies out of the earlier two corporations based in Baden and Mannheim. Corporate central staffs in both countries have now been reduced to a minimum and streamlining projects have considerably shrunk total overhead costs. Similar programs have been implemented in Italy, Norway, Finland, Austria, Brazil, Canada, the United States, and earlier in Sweden. A profit improvement of almost \$ 100 million in the Swiss company from actions initiated between 1987 and 1989 illustrates the extent of these changes. Even more important than straight cost reductions are higher flexibility, closeness

to the market, and increasing breadth in general management, all of which follow from the new structure.

Ambitious goals were set to run ABB's business with much less working capital – a \$ 4 to 5 billion reduction relative to sales at the time of the merger. In trade receivables the relative reduction achieved totals almost \$ 800 million. Inventories and work-in-progress showed a relative decrease of almost \$ 1.8 billion between 1987 and 1989. By merging plants and eliminating overlapping operations, fixed assets were freed up and real estate could be divested. This contributed to an improvement of return on capital employed from 13.6% in 1988 to 17.0%.

1988 was a difficult year with major restructuring projects. In some places uncertainty about the future raised doubts about the merger. 1989 has been much smoother, because people were able to see improvements in profits and expansion in sales from a more cost competitive basis. The Business Area management teams are showing increasing competence in their global role of optimizing their overall business across national borders. The joint production of power generation equipment between Germany and Switzerland is one example of excellent cross-border cooperation that has substantially improved ABB's competitiveness.

1989 was also a year of greater emphasis on the marketplace, with clear focus on exploiting our new strengths and significantly improving market coverage and service.

Industry Trends and ABB

Environmental protection is gaining momentum throughout the world. Air pollution, shrinking supplies of clean fresh water, threats to the ozone layer, and the looming danger of global warming/greenhouse effect have not only gained public attention but have led to legislation and general rethinking of the world's industrial future. ABB is active in energy, transportation, industrial processes, and environmental protection systems and is thus in a unique position to meet the new demands arising. Almost half of ABB's overall business today is "environmentally driven", directly or indirectly.

ABB offers higher efficiency in the generation, transmission, and use of electric energy and thereby reduces the environmental impact. A recently delivered combined-cycle plant holds the world record with a thermal efficiency rate of 52%. ABB is also pioneering in clean coal technology by putting the first three commercial PFBC plants (pressurized fluidized bed combustion) into operation in 1990.

The handling of waste is creating growing environmental concern and municipalities are running out of capacity in landfills. Through the acquisitions of Combustion Engineering and the Swiss engineering firm W + E Umwelttechnik, ABB has entered the resource recovery market and expanded its activities in materials recycling, energy production from waste, and reduction of air and water pollution from incineration.

Shrinking reserve margins in power plant production capacities in the United States and in parts of Europe have become apparent, as well as a continuing major deficit in third-world countries. This, together with aging, polluting, and inefficient postwar power plants will spearhead a comeback of demand for power plant equipment in the 1990s.

There will be a certain time-lag before demand for power transmission and distribution follows demand for power generation. Deregulation in Western Europe and the future ties with Eastern Europe will reinforce demand – already growing – for high efficiency bulk transport of electricity over long

distances, on land and under water. ABB is clearly the world leader in power distribution systems and most types of transmission products and is poised to meet these new challenges.

The railways are staging a comeback, the driving forces being a combination of environmental concern and the need for efficient alternatives to congested roads, airports, and airspace. The planned high-speed train network in Europe is an illustration of future business opportunities. Clean and efficient subways and suburban trains will be needed for metropolitan areas. ABB is equipped to supply both high-speed trains and complete mass transit systems as well as all types of rolling stock and auxiliary services. We expect substantial growth in this field.

In the industrial sector there is a need to revamp aging plants in Europe and the United States, to improve quality, and to raise productivity. By adding the Combustion Engineering process control activities, ABB enhances its position as one of the leaders in process industry automation and instrumentation with a strong position in Europe, North America, and Asia. With C-E and the newly acquired UK-based company Global Engineering, ABB has considerably strengthened its worldwide position in the offshore and petrochemical industries. Demand is also picking up for robotics and for complete automation systems.

There is a continuing trend towards more complex solutions in project financing. Build, own, and operate schemes and leasing solutions are becoming more common and the opening up of Eastern Europe will increase countertrade. The growing and profitable Financial Services Segment gives important support to industrial operations in this field.

These positive trends will set the stage for demand for ABB's products in the 1990s and beyond, and create opportunities for above average growth in our industry. However, their impact on short-term demand should not be overestimated. Decisions to build power plants tend to be delayed, the

creation of a transportation infrastructure is a long-term proposition and new environmental legislation – however urgently needed – generally takes a long time before it is introduced.

ABB's Multidomestic Operations

Some comments on the regions of the world:

- Europe is coming back – fuelled by increased economic integration in Western Europe. Since the dramatic changes in Eastern Europe, including the Soviet Union, new and stronger East-West ties can be expected, with another wave of economic integration in the 1990s. Western Europe's 400 million people combined with Eastern Europe's 400 million will make Europe the largest regional market in the world.

ABB today has half its sales in Western Europe with strong domestic presence in most EFTA and EC countries. Through joint ventures and increased trade ABB also expects to strengthen its sales and presence in Eastern Europe. From 1% of ABB's business, it could grow fivefold over the next 5–6 years.

- North America is characterized by a revival of its industry with some American companies returning to the world market more competitive than ever. Domestically, major infrastructure investments in energy and transportation are expected and the increasing environmental demands will drive several of ABB's Business Areas.

Internal growth and major acquisitions have turned ABB into a full-fledged domestic company in North America. Westinghouse was the domestic leader in power transmission and C-E is a world leader in combustion systems. The combined nuclear resources and technology also make ABB a global player in that field. ABB can now offer utilities and industry the broadest line of plants and products in the power sector. Equally important are the Group's industrial equipment, automation, and engineering services, where ABB can now serve its North American customers from a

strong domestic platform. North American R&D facilities will also be expanded.

– Other regions of the world

In the Western world there tends to be a preoccupation with one region at a time. Recently, the focus was on the Far East and now it is on Eastern Europe. However, ABB is continuing its long-term effort to build local presence with manufacturing and engineering both in the so-called NIC countries and the major developing countries. While all these countries have enormous needs for upgrading their infrastructure, they can only afford to import some minor parts of the required products. Major expansion for ABB is foreseen in India, for example, as well as in certain Southeast Asian and some Latin American countries.

ABB's Strategy

ABB's strategy is in line with the industry trends and regional opportunities commented above. The Group will continue to build up domestic presence in key markets and focus on core business areas where it can hold a leading position in our increasingly globalized industry. Two years ago ABB stated that its goals were to be the number-one low-cost producer, to be close to the customers, and to provide them with high quality and state-of-the-art technology.

This last point is fundamental for ABB's future success. \$1.4 billion were spent on R&D last year, or about 7 percent of invoicing, and major efforts were made to focus more strongly on long-term R&D projects aimed at lifting technology levels. At the same time, a better return on R&D investments through stronger market orientation and a faster innovation rate is being sought.

Sometimes doubts were raised about whether ABB had enough management capacity to handle the original merger with all the internal changes involved and at the same time cope with a more than 50 percent increase of business between 1987 and 1990, not to mention the integration of all the newly acquired companies. This development has certainly led to a high work load for management and staff.

First, it should be noted that the events triggered by the restructuring of our industry in Europe, the opportunities arising in the United States, and the recent opening up of East European markets were not going to wait for ABB to get ready. Industry is being reshaped now, and ABB has to act. When the dust has settled, a new industry structure will emerge that may last for several decades. On average, ABB management has coped well with the many simultaneous demands. One reason for this is ABB's decentralized structure resulting in a larger number of managers in responsible positions. The Group's management capacity is far broader in 1990 than it was in 1988. Above all, we have coped because of the enthusiasm, the dedication, and the hard work by so many of our employees and managers. Many outstanding achievements were noted throughout the ABB Group.

My colleagues and I want to express our appreciation and our sincere thanks for this exemplary effort.

Outlook for 1990

ABB's many acquisitions and joint ventures will enhance long-term earnings growth. However, some of them will have a negative effect on short-term results. Restructuring costs are normally incurred during the first 1–2 years, while improvements of earnings can only be realized gradually. Some Business Areas will also be affected by a slowdown of the economy anticipated in certain countries.

On the other hand, the positive effects of restructuring and rationalization will continue, and we expect an increase in the results in 1990. Longer-term we should see continued steady earnings growth, primarily from margin improvements, but also from volume increases.

Power Plants

US\$ in millions	1989	1988
Orders received	3,151	2,194
Revenues	2,795	2,510
Operating earnings	219	231
Number of employees	16,230	16,081

Scope of Activity

ABB can meet virtually every need of clean and highly efficient power generation for utilities and industry.

For fossil-fired steam power plants ABB supplies turnkey solutions for complete power plants as well as a full range of individual components, such as boilers for all types of fuel (coal, oil, gas, etc.), turbines, generators, transformers, switchyards, power-plant engineering, instruments, and control equipment.

In the field of gas-turbine or combined-cycle power plants, ABB figures among the world's leaders. Plants can be built for peak, intermediate, or base-load demand.

As awareness of the threat posed by the greenhouse effect grows, nuclear energy is again becoming an acceptable alternative. ABB has a strong position in all major reactor technologies, irrespective of whether they are for advanced light-water reactors or high-temperature gas-cooled reactors. In addition to nuclear reactors, ABB supplies conventional island technology for nuclear power plants.

There is still considerable potential for hydropower worldwide, and in this field ABB's expertise covers all the electrotechnical aspects of such power plants.

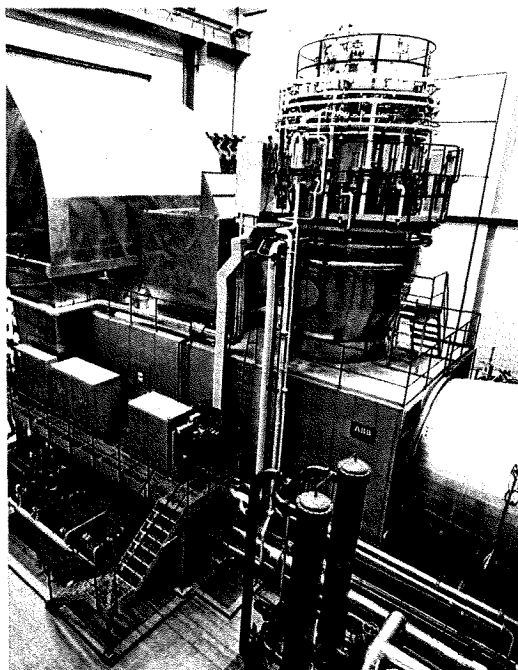
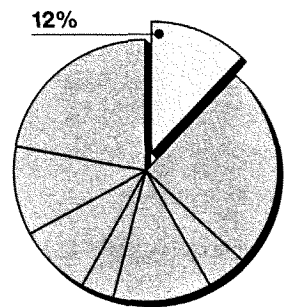
ABB is number one in clean coal technology, with the first three commercial PFBC plants (pressurized fluidized bed combustion) becoming operational in 1990. PFBC plants offer excellent solutions because they meet the most stringent emission standards (NO_x and SO_x) as well as modern efficiency requirements. Older coal-fired power plants can be upgraded with PFBC equipment.

Power plant control systems must meet increasingly higher standards for power plants in terms of efficiency and reliability. Rapid developments in electronics are opening up new opportunities. ABB is well positioned to supply such systems.

With its retrofit and refurbishing as well as service and maintenance activities in all the above areas, ABB is contributing to the modernization, improvement, and operation of power plants.

Segmental Overview

Segment Share of Total Group Revenues



This combined-cycle power station in Utrecht is the world's most efficient fossil fuel plant – and one of the cleanest too, thanks to a new combustion chamber developed by ABB.

Segmental Overview

Market Conditions and Order Intake

Power production reserves are declining because the growth rate of electricity consumption is higher than the rate at which new production capacity is added. This applies to the U.S. and to a number of countries in Western and Eastern Europe. In developing countries there is a huge demand for more generating capacity, the limiting factor there being financial resources. This situation together with aging postwar equipment and stricter environmental standards constitute the driving forces for demand.

In 1989 there was a steady move towards gas-turbine and combined-cycle plants to add peak-load capacity and use current abundance of gas. This type of plant has the advantage of having very high efficiency, low emissions, and the shortest construction time. It can be built in two stages: First the gas-turbines, yielding about two thirds of the required power; a steam plant addition may follow some twelve months later, giving another boost both to output and efficiency. ABB, a world leader in this area, enjoyed a boom in combined-cycle plant orders in 1989.

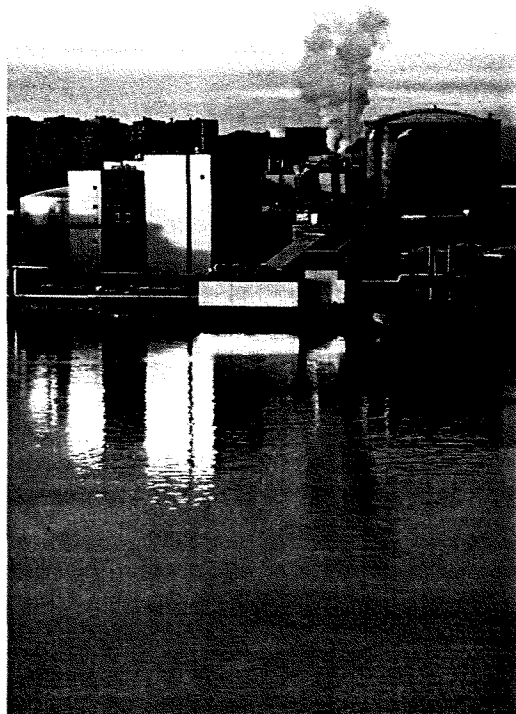
Strategy, Future

The objectives of ABB's strategy in power generation are:

- to further strengthen ABB's technological leadership position by continued large-scale investment in R&D;
- to hold a substantial share in the global and growing power generation market;
- to maintain its position as world leader in high efficiency/low pollution projects and in modern control systems.

The acquisition of Combustion Engineering, a world leader in combustion systems, vastly increased ABB's presence in the North American power market as well as the breadth of its product portfolio. Joint ventures in Eastern Europe, Italy, and the United Kingdom together with acquisitions in Spain will not only further strengthen ABB's position in these markets but also its global presence.

ABB's unique PFBC (pressurized fluidized bed combustion) clean coal technology cuts pollution from this cogeneration plant in Stockholm, as it helps answer the city's heating and power needs.





State-of-the-art ABB technologies are helping communities worldwide – towns like Utrecht in Holland, for example – to meet their needs for electric power while also keeping their air clean.

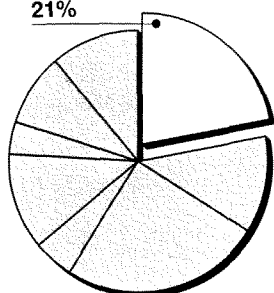
Power Transmission

Segmental Overview

US\$ in millions	1989	1988
Orders received	4,828	3,376
Revenues	4,775	3,619
Operating earnings	288	28
Number of employees	34,978	23,569

Segment Share of Total Group Revenues

21%

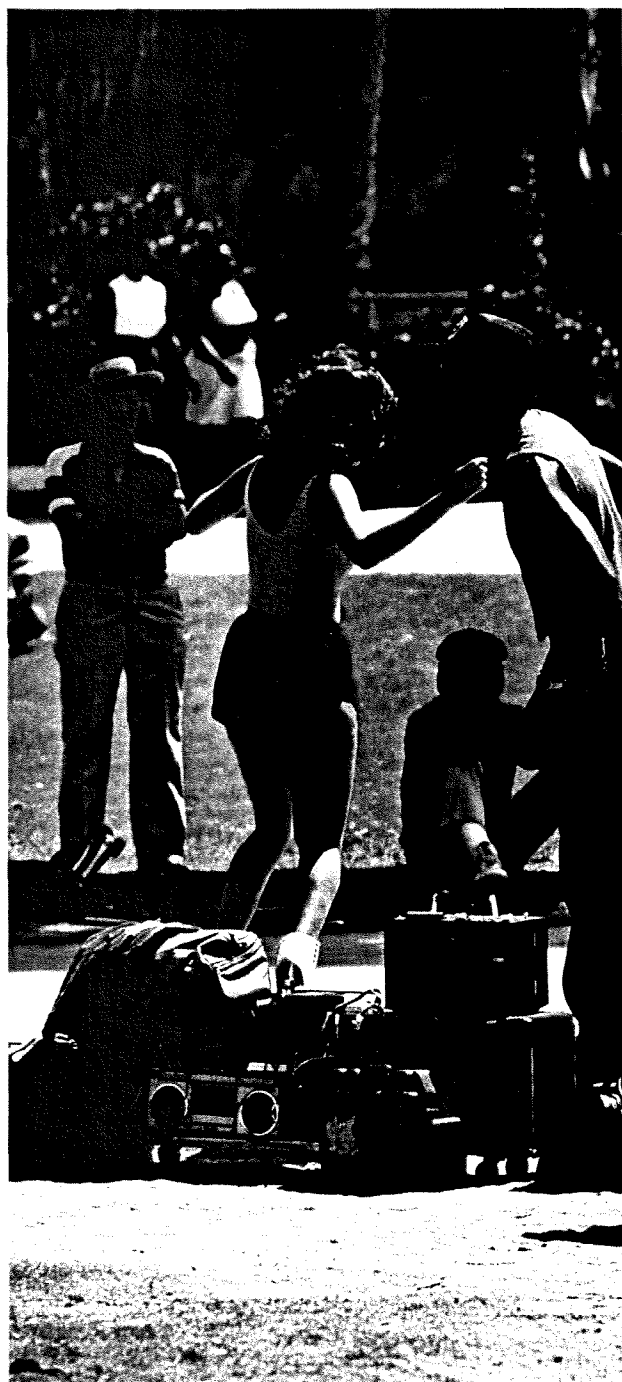


Scope of Activity

ABB's Power Transmission Segment is a leader in the transmission sector of the industry in terms of technology and market position. The Segment is highly diversified and covers a wide range of transmission products and systems.

The product portfolio is reflected in the Segment's nine Business Areas:

HV Switchgear	Breakers and other high-voltage apparatus, conventional and gas-insulated substations;
Power Systems	High-voltage direct-current transmission and reactive power compensation;
Network Control	Supervisory control and energy management systems;
Power Transformers	Power and industrial transformers;
Distribution Transformers	Oil-immersed and dry-type distribution transformers;
Relays	Protection and substation control relays and systems;
Cables and Capacitors	LV, MV, and HV cables, wires, and capacitors;
Electric Metering	Electromechanical and electronic meters;
MicaComp	Transformer components and manufacturing equipment.



The most important event in 1989 was the 45/55 joint venture with Westinghouse, scheduled to be wholly-owned by ABB in January 1990. This added some 25 factories to the Segment with about \$ 1 billion in sales in the field of power and distribution transformers as well as in relays and HV switchgear. Through this joint venture, ABB also entered the electric metering business with sales of over \$ 100 million in 1989, the main markets being North and South America. In Italy, a 60/40 joint venture with Ansaldo added a further \$ 75 million in sales, mainly in the field of transformers.



ABB power systems bring 13 million Los Angeles inhabitants the benefits of reliable electricity supply to their homes, offices and shops – this means they can even enjoy a comfortable environment away from the beach.

Segmental Overview

Market Conditions and Order Intake

The major markets for Power Transmission products continue to show limited growth.

In developing countries industrialization, population growth, and migration to the cities have created a strong underlying demand for more transmission facilities. Innovative financing and increased local manufacturing are necessary to develop these markets.

Since GDP growth was moderate in most of the Segment's major markets and some countries had excess capacity, the market for new installations continued sluggish in the industrialized world. However, investments to replace old equipment and to raise efficiency and reliability in transmission systems began to pick up.

Europe showed a mixed growth picture, but the joint venture with Westinghouse more than tripled sales in North America.

In Asia, the demand for products increased substantially, particularly in Iran and Iraq since the Gulf war. Several large orders were booked in the Middle East and South-east Asia.

The market in Latin America was still slow, due to the unfavorable economic situation in most countries; nevertheless, some large orders were received.

The following orders in 1989 deserve special mention:

- HVDC submarine cable transmission for New Zealand, \$ 190 million;
- Substations (gas and air insulated) for several developing countries;
- Series capacitor banks for Argentina, \$ 40 million.

Research and Development in Power Transmission

The Power Transmission Segment is committed to maintaining its technology leadership. With a sales base of almost \$ 5 billion, it is possible to make substantial R&D investments not only to keep a high product innovation rate but also to raise the technology level in products and systems long-term. Research,

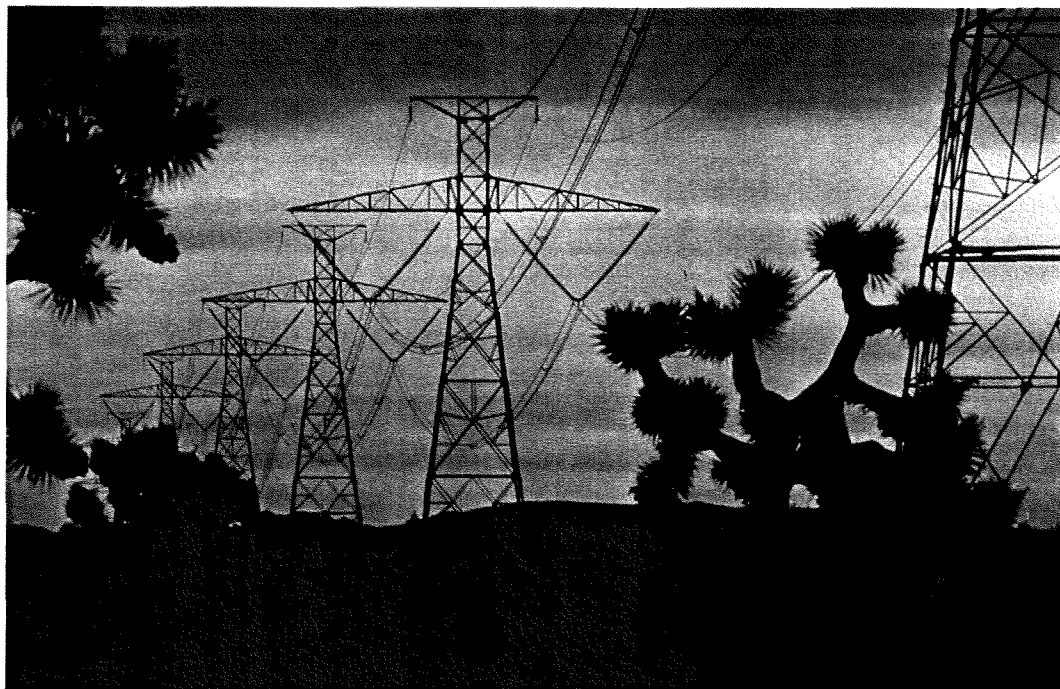
development, and design expenditures for 1989 were in the range of \$ 300 million.

ABB introduced a new interrupter technology for SF₆ breakers. Energy generated during the breaking process is used to extinguish the arc (self-blast technology) which simplifies design and improves reliability. Furthermore, new overcurrent relays were introduced in the distribution field.

The world's first thyristor-controlled series capacitor will be installed in a 345 kV network for the American Electric Power Service Corporation (AEP) in the U.S. A joint R&D project with AEP showed the feasibility of controlling active power in an AC system using controllable series capacitors. The installation will include an outdoor thyristor valve with direct light triggering. Other achievements in this field include the development of optical current transducers for the protection of a 500 kV series compensation system in Argentina; 160 such units are to be delivered.

The commissioning of the Fennoskan HVDC (high-voltage direct-current) project confirmed ABB's successful development of a mass-impregnated HVDC submarine cable for 400 kV and 500 MW, an increase from the earlier all-time high of 285 kV and 300 MW.

ABB launched a new system for control of primarily electric networks including SCADA (Supervisory Control And Data Acquisition) and EMS (Energy Management Systems). This S.P.I.D.E.R. system is based on VAX computers for advanced systems and on commercially available PCs for smaller systems. The product family includes load management applications and will eventually make it possible to combine power generation and consumption control into one system.



Up to 30 percent of the total amount of electricity consumed in the Los Angeles area is transmitted via HVDC systems built on a turnkey basis by ABB.

The Vindhyachal HVDC station, India's first high-voltage DC scheme, was completed. It employs a new HVDC transformer design using a so-called extended delta connection.

A comprehensive research program on outdoor insulation with a new method for insulator surface treatment solved the problem of flashovers which occurred in certain climatic conditions at very high DC voltages.

Strategy, Future

The original merger of ASEA and BBC and the subsequent acquisition of Westinghouse T&D created a unique opportunity to achieve ABB's two goals – technology leadership and low-cost production. Most of the restructuring measures for plants and distribution channels have already been implemented and consolidation of R&D resources has largely been completed.

The strategy to achieve these goals varies according to the nature of the business. Tailor-made systems like HVDC are global activities while standard products like distribution transformers are local. Technology and quality are equally important in all areas, but organization of production and marketing differs substantially.

The Segment now has a strong position in most European countries and about 25% of global revenues in Power Transmission are generated in the North American market. The R&D activities in North America will be further expanded and enhanced. Considerable ex-

pansion is foreseen in Asia and local manufacturing is being increased. Finally, ABB Power Transmission expects to make a major contribution to improving and modernizing electrical networks in Eastern Europe.

Programs for personnel development and exchange of employees across national borders play an important role in ABB's Power Transmission strategy. Educational investments will be increased to raise the performance and expertise of Power Transmission employees beyond their already high level.

Moderate sales development is anticipated for the next few years. However, with a keener competitive edge in technology and costs and with increasing market demand more substantial growth is foreseen later. This will particularly apply for HV substations, power transformers, and converter terminals. A steady rise in profits beyond the increased profit level achieved in 1989 is expected in the years to come.

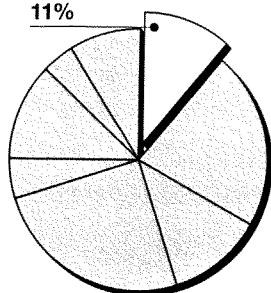
Power Distribution

Segmental Overview

US\$ in millions	1989	1988
Orders received	2,644	2,522
Revenues	2,516	2,480
Operating earnings	140	106
Number of employees	25,121	24,769

Segment Share of Total Group Revenues

11%



Scope of Activity

ABB's Power Distribution Segment offers a complete range of products and systems for the distribution and control of electrical power. The products have high-quality performance and the necessary flexibility to comply with the various voltage levels, standards, and other conditions prevailing. ABB's worldwide operations include manufacturing these products in some 30 countries for delivery to customers across the entire user field from utilities and industry to residential power consumers.

The ABB product range includes low-voltage apparatus for protection, switching, and control such as circuit breakers, switches, contactors, fuses, push buttons, and programmable controllers; low-voltage systems, such as motor control centers, distribution boards, and control equipment; medium-voltage equipment utilizing both vacuum and SF₆ technologies; distribution plants for distribution of electrical power at medium-voltage; and turnkey deliveries of substations and electrification projects. Installation of these

products and systems as well as of light-current infrastructures is offered for every type of building and outdoor application.

Market Conditions and Order Intake

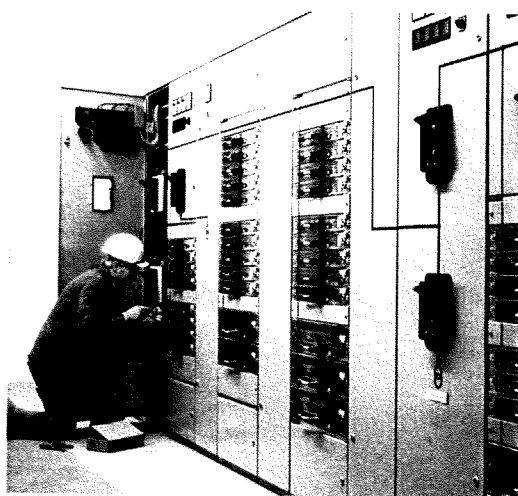
The low-voltage business took advantage of the favorable business climate throughout 1989. Moreover, synergies originating from merging sales organizations, sharing R&D, and optimizing manufacturing facilities made a major contribution to the positive development of sales volume and results.

As the largest manufacturer of medium-voltage equipment, ABB once again demonstrated its market leadership. Strong demand led to increased sales and improved market penetration. The new generation of circuit breakers contributed to the excellent results. Restructuring measures in the U.S. resulted in a significant profit improvement.

The distribution plant business concentrates on Nordic markets and export projects to markets outside Europe. Local capacity was enhanced in a number of overseas countries such as India.

Within the Segment, ABB Installation is an important sales channel for power distribution and other ABB products and accounts for considerable sales volume. Its main activities are in Northern and Central Europe but also in the Middle East and Southeast Asia. These activities have been further expanded by the acquisition of the James Watt group, a leading Australian installation company.

The key to meeting the power supply needs in buildings like the Stuttgart State Gallery: ABB products like this low-voltage switchboard which are compact, safe, easy to use and maintain.





Visitors to Stuttgart's celebrated art museum can enjoy the exhibits fully thanks to ABB's sophisticated large-scale power distribution systems providing electricity and light.

Strategy, Future

ABB's world-class products are sold under several well-known brand names. Product development focuses on providing cost-efficient, reliable, and safe solutions for the customers. State-of-the-art technology in electronics and applied mechanics is used to further develop ABB products and systems for the world market. They include microprocessor-based relays in circuit-breakers, decentralized programmable controllers communicating via serial bus in switchboard applications, and the microprocessor-based control system for low-voltage motor control centers.

The integration of power supply, energy management, and comfort control as well as computer and telecommunication networks into the Power Distribution Segment will open up new opportunities for comprehensive ABB product and system deliveries.

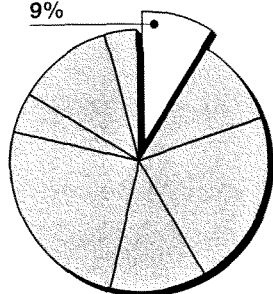
Industry

Segmental Overview

US\$ in millions	1989	1988
Orders received	2,292	1,966
Revenues	2,019	2,047
Operating earnings	131	22
Number of employees	15,110	15,200

Segment Share of Total Group Revenues

9%



Scope of Activity

ABB's Industry Segment serves the market with a wide range of components, products, systems and software engineering for automation of industrial processes.

The Segment is divided into four Business Areas:

- Drives includes AC and DC drives, larger motors, and the whole range of power electronics;
- Metallurgy includes high-pressure presses, test systems, steel-making equipment, rolling mills, systems for flatness control, and other specialities;
- Marine, Oil and Gas includes a wide range of products and systems for offshore, pipeline, and marine applications;
- Process Automation is the backbone of ABB's automation activities, providing distributed process control systems including application engineering for a wide range of market segments.

"Le Monde" is among 60 of the world's leading newspapers which use ABB process automation equipment to control everything from production planning through to final printing.





ABB helps satisfy people's thirst for information with a range of systems allowing the pulp and paper industry to efficiently produce top-quality products and save as much energy as possible.

Market Conditions and Order Intake

1989 was a boom year for new industrial investments and for the revamping business. Compared to 1988, order bookings rose significantly and sales to the pulp and paper, cement, and metallurgical industries developed exceptionally well.

ABB Drives defended its number one market position. Technology leadership in AC drives was a strong point when the market shifted towards this technology. In addition, the capability of industry-specific system solutions is a major strength of this Business Area. Drives enhanced its position on the French market by acquiring a 70 percent stake in a joint venture with Jeumont-Schneider.

Sales of mill control systems for the pulp and paper industry showed a major breakthrough for ABB's process automation business in the U.S., Canada, and Brazil. Orders for new cement plants were received from Thailand, Korea, India, and Egypt. Several reference orders for chemical plants underscored ABB's position as an excellent automation supplier to this very important industry.

Marine, Oil and Gas further strengthened its market position and received a number of important orders. A reference order for a remote-control device for the underwater installations at a Norwegian oil field was secured after successful prototype tests. Process control equipment will be delivered for other Norwegian offshore projects. This Business Area acquired UK-based Global Engineering, a consulting company with a worldwide reputation. A 40 percent stake was also acquired in the Skeie group, a mechanical manufacturer in Norway.

Excellent market conditions in the steel industry allowed ABB to improve the order intake in all metallurgical product categories. Quintus had a major breakthrough by supplying a first high-pressure press to a German car manufacturer.

Strategy, Future

The Industry Segment is focusing on consolidating and further developing ABB's capability for optimizing industrial processes in this global marketplace. It strives to be a competitive supplier for individual requirements at all levels including consulting, engineering, and erection of industrial plants; controlling industrial processes; and for industrial process equipment including drives. Furthermore, the Segment can serve its customers with fully-comprehensive solutions.

ABB's Industry Segment will be substantially strengthened by the recent merger with Combustion Engineering. Combustion Engineering's business units such as Taylor, AccuRay or Lummus Crest have complementary strengths in terms of both regions and applications. The Segment will therefore also have a strong foothold in North America and in the petrochemical and chemical fields.

Transportation

US\$ in millions	1989	1988
Orders received	1,119	993
Revenues	957	747
Operating earnings	57	46
Number of employees	6,801	4,732

Scope of Activity

The activities of the Transportation Business Segment focus on serving global markets for railway equipment, long-distance railway operations, and public transport needs in and around cities. They include complete rail systems, electric and diesel-electric vehicles, passenger coaches, freight wagons, power supply, and signalling systems.

Market Conditions and Order Intake

Railways and electrified mass transit systems in and between large cities are staging a comeback. The traditional national approach in Europe will gradually give way to closer cooperation and standardization across borders, making rail transport more competitive with road and air transport. This is the basis for the emerging European high-speed train network.

The advantages of rail for freight and fast passenger services and of electrified mass transit systems in congested and polluted metropolitan areas are becoming increasingly evident as environmental concern grows.

With industrialization and the growth of third world markets, the rail transportation alternative will also play an important role in these countries. Electrification schemes are under way in several countries.

Many cities in Asia have a population exceeding one million. They need clean, high-capacity mass transit systems to meet future passenger transportation demands. Efficient light rail systems and metros are often the most economical solution. Many such projects are under way in various countries including Pakistan, Malaysia, Indonesia, and Taiwan.

ABB's transportation business is expanding rapidly both through generic growth and because of some significant acquisitions during 1989. The former British Rail Engineering Ltd was divested by British Rail and ABB acquired 40 percent of the shares of BREL Ltd. A British company owns another 40 percent, while the management and workforce of the company own the remaining 20 percent. BREL employs some 8,500 people. The railway market in Britain has a bright future.

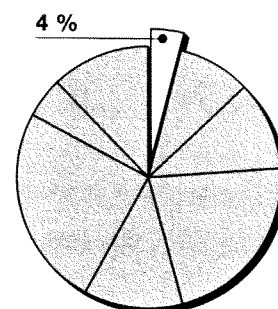
The acquisition of the Swedish Ericsson group's signaling business broadened the product portfolio by adding modern safety signal systems and strengthening ABB's scope for supplying complete railway systems. The new signaling company, EB Signal, is part of the Norwegian EB group.

In line with its strategy of expanding maintenance of rolling stock, ABB acquired a majority holding in three maintenance workshops from the Swedish State Railways.

The announcement on December 18, 1989, of plans to create a new traction company in Germany jointly owned by Thyssen and ABB means that a more complete and stronger railway company will be operating in the important German market.

Segmental Overview

Segment Share of Total Group Revenues

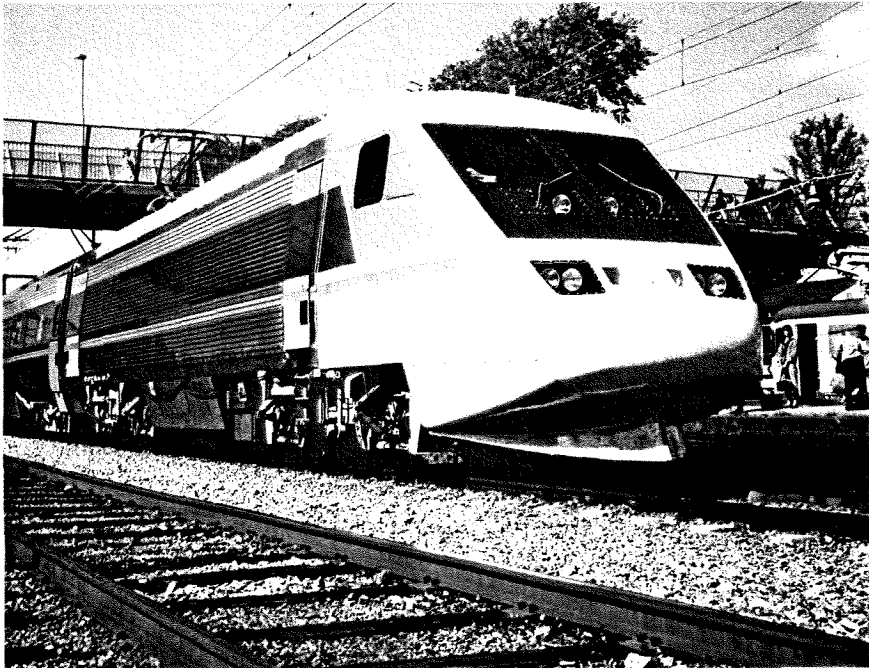


Segmental Overview

Some highlights among ABB deliveries in 1989:

- The first power car for ICE high-speed trains for the German Federal Railways;
- Propulsion and car equipment for 13 commuter trainsets for the Swiss Federal Railways;
- The first four-car trainsets in commercial use with ABB three-phase propulsion for the Transit Authorities of Hamburg (Hamburger Hochbahn);
- The Istanbul metro system – the first stage of this complete public transit system was taken into service in March 1989.

ABB's X2 tilting train in Sweden, which can travel at 210 km/h on existing tracks without causing passenger discomfort on curves, is one of ABB's transportation solutions.



The Istanbul project is an important milestone and reference for ABB Transportation. The project involves the complete delivery of civil works, tunnels, bridges, tracks and stations, power supply and signaling systems, and the modern six-axle cars powered via an overhead catenary system. ABB's undertakings further included the construction of the control centers and service halls as well as training for service personnel and drivers.

A new ABB high-speed train concept was launched with the first X2 tilting train for the Swedish State Railways. The innovative microprocessor-controlled technology makes the car body tilt inwards when traveling through curves. The concept will have a worldwide market for applications on lines where new high-speed tracks are not justified.

Orders received during the year included locomotives for the shuttle-train service through the Channel Tunnel, modern light rail vehicles for the city of Baltimore in the U.S., and the complete refurbishment of electrically propelled commuter trains for New Jersey Transit in the United States.

A \$ 580 million contract awarded to BREL for 640 trains for London Underground Ltd marked another milestone. The trains incorporate a three-phase propulsion system based on ABB technology supplied jointly by ABB and Brush Electrical Machines Ltd.

Strategy, Future

ABB's presence in engineering and manufacturing is firmly established as is its strong market position in Western Europe, the U.S., and Australia. This is now being expanded to other parts of the world, especially to India and the Far East. In line with its multi-domestic approach, ABB has established facilities in important markets for the supply, maintenance, and service of railway systems.

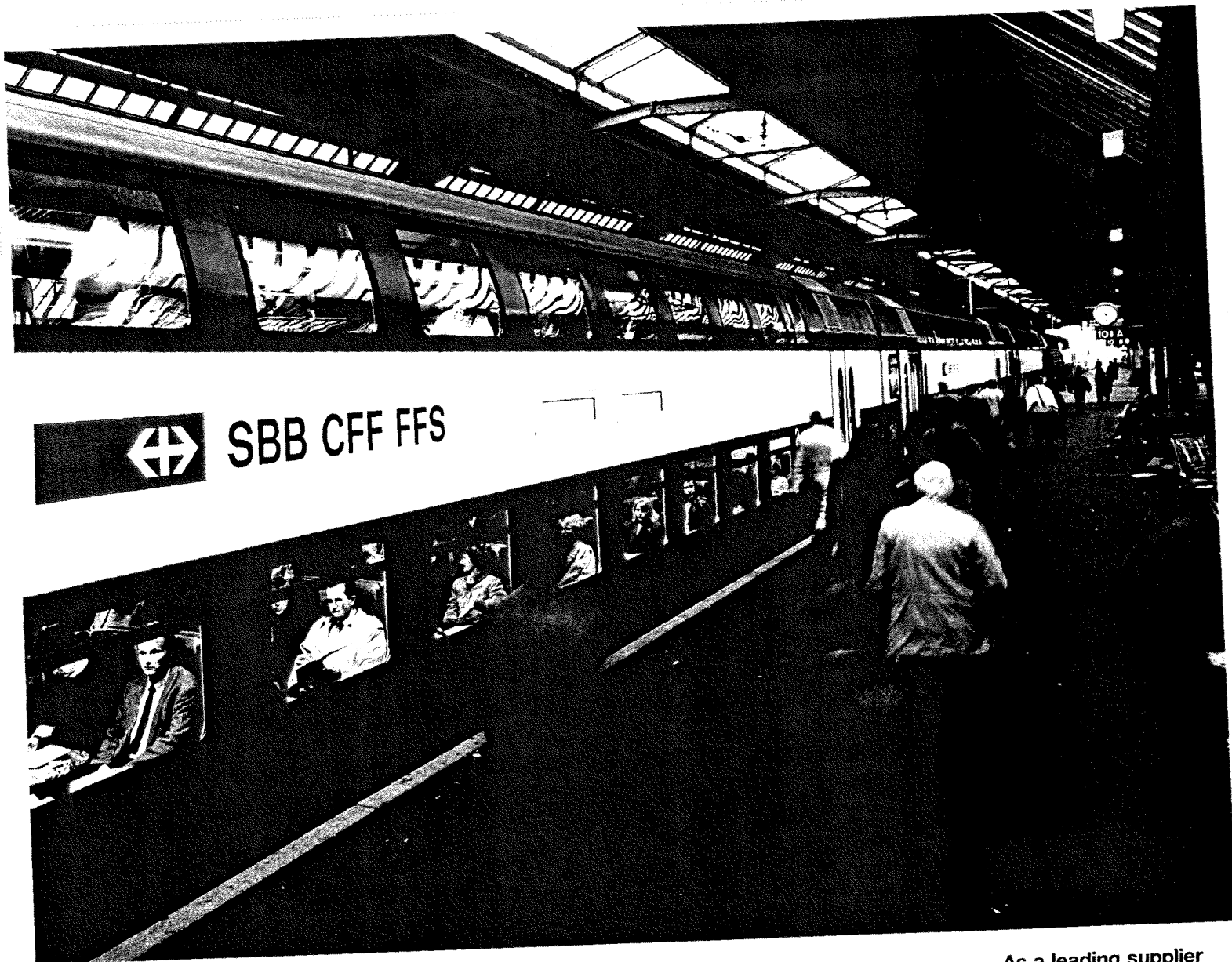


ABB can supply complete railway installations, like the metro system in Istanbul. Public transport operators are now demanding additional commitments from suppliers including financing packages and operations. An example of this is the high-speed rail project in Florida.

ABB Transportation is a recognized leader in technology, especially in the field of microcomputerized three-phase drives for locomotives, multiple units, and mass transit vehicles. ABB has developed unique vehicle-dynamic design programs which will serve as a basis for future generations of high-speed trains. In developing rolling stock, ABB's clear advantage is internal availability of a wide range of technologies such as electronics, power semiconductors, rotating machinery, and new materials.

ABB is the world's leading supplier of rail systems and equipment and is determined to maintain that leadership. The Group is established in the most important markets, poised to meet the rapidly increasing demand for efficient, high-capacity, non-polluting transport systems.

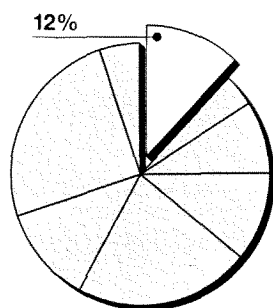
As a leading supplier of high-speed trains and mass transit systems, ABB is helping railways worldwide provide an efficient, pollution-free alternative to congested roads. The double-deck train for the Zurich regional express services of the Swiss Federal Railways is a good example.

Environmental Control

Segmental Overview

US\$ in millions	1989	1988
Orders received	3,115	2,786
Revenues	2,843	2,511
Operating earnings	130	77
Number of employees	20,999	19,986

Segment Share of Total Group Revenues



Scope of Activity

ABB's Environmental Control Business Segment is mainly identical with the ABB Fläkt group. It focuses on air and energy technology and provides systems and products for environmental protection, energy saving, efficient industrial processes, and indoor climate, aiming to promote health, performance, and comfort. The main customer groups are the construction, power, automotive, pulp and paper, and food industries. These customers are primarily located in the industrialized parts of the world, where official bodies and the general public set high standards for the quality of the environment both indoors and out.

Market Conditions and Order Intake

Growing awareness of the importance of environmental protection and efficient use of energy has created a favorable business climate for this Segment. However, market growth depends more on legislation and governmental regulations than on public opinion. Many countries, particularly in Eastern Europe and the third world, urgently need environmental improvements but lack sufficient funds.

Higher environmental standards against a background of economic stability in many countries contributed to the excellent growth figures in 1989. Within the automotive and the pulp and paper product industries, the orders received for industrial drying and paint finishing in North America and Sweden as well as for process equipment for the Japanese pulp industry increased significantly.

Steady demand in the Swedish and Finnish construction industry had a positive impact on the order intake for Indoor Climate.

In Italy, the state-owned power generation company ENEL placed the first part of an order in which ABB's new desulfurization equipment will be used to modernize Italy's power generation plants.

Through acquisitions in North America, ABB strengthened its position as a fan supplier. Today ABB is the leader in this market.

Waste treatment including waste-to-energy plants showed substantial growth, and this will be even more pronounced in the future through lack of capacity in landfills and the need to recycle material and conserve energy. ABB achieved its aim of broadening and enlarging activities in solid waste and industrial waste water treatment. W+E Umwelttechnik AG, Switzerland, a specialist in waste

ABB's environmental technologies are making indoor climates healthy and comfortable – especially for people in industrial countries who spend up to 90 percent of their lives indoors.

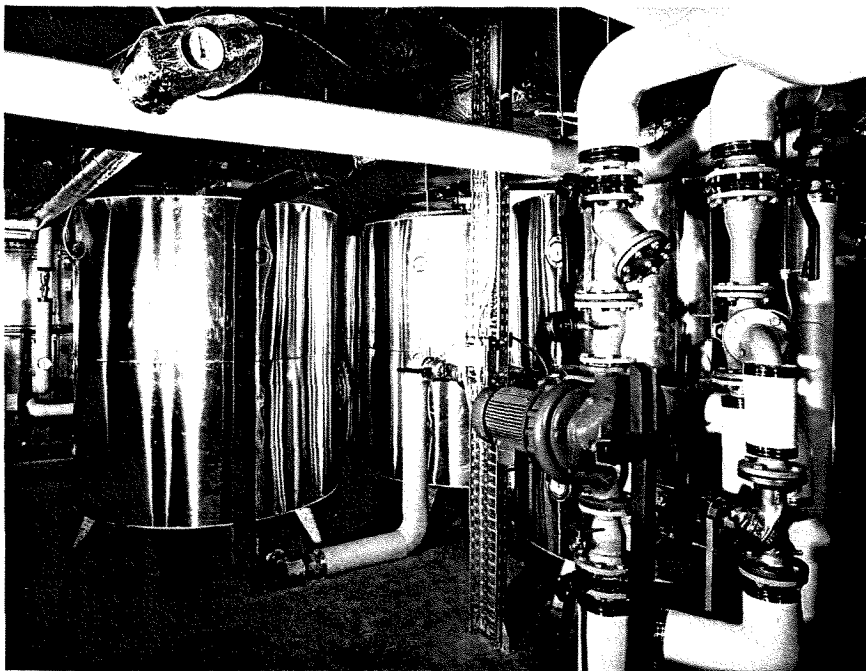


incineration, was acquired to broaden the technology base in the resource recovery area. Together with ABB Fläkt's air pollution control and other ABB Business Segments providing power generation, process control, and contracting, ABB's Environmental Control is well equipped to supply turnkey resource recovery plants.

The acquisition of Combustion Engineering added substantial technology strength and U.S. market presence in the resource recovery field. C-E has both RDF (Refuse Derived Fuels) and mass burning technologies and has built a number of waste incineration plants in recent years. C-E Environmental offers a full range of services for preventing and solving environmental problems, such as environmental sciences, remedial action services, and hazardous waste systems.

The Environmental Control Business Segment also has a strong worldwide position in the marine market in the fields of ventilation, refrigeration, and power systems. During 1989 it purchased the remaining 50 percent of Gadelius Sunrod AB, a supplier of auxiliary power systems for vessels.

This central air handling installation at a Brussels hotel, supplied by ABB's subsidiary Fläkt, purifies the air as well as heating or cooling it, as required.



Strategy, Future

Growing awareness of the importance of environmental protection throughout the world constitutes the most important premise for this Business Segment's future development.

Environmental Control operates in fields where demand will increase as a result of more stringent measures to conserve and improve the environment indoors and outdoors and to save energy in industrial processes and buildings.

There is a vast and urgent need for environmental protection in Eastern Europe. ABB is poised to become a partner for East European industry in this field.

ABB's aim is to continue the present strategic direction by stepping up R&D investments and further increasing its presence in important engineering and manufacturing markets. Additionally, the Segment will broaden its scope of activity in the areas of environmental audit, solid waste and waste water treatment. The acquisitions of Combustion Engineering and the Swiss W+E company substantially enhanced ABB's position in the waste incineration and resource recovery fields.

Through internal sales increases and acquisitions, the Environmental Control Segment recorded some 65 percent growth over the past two years. A high rate of expansion is expected to continue during the next few years.

Financial Services

US\$ in millions	1989	1988
Orders received	1,422	1,065
Revenues	1,446	1,046
Operating earnings	95	74
Number of employees	597	515

Scope of Activity

Decentralization is a key word in managing the large and complex ABB Group. Financial factors are an integral part of all business strategies and decisions and have to be handled by each business unit. However, within this decentralized organization it is necessary to take advantage of ABB's financial strength to obtain economies of scale and thus support the required back-office functions, maximize investment and borrowing power, and attract professional experts.

These economies of scale in the financial field are being fully utilized through ABB Financial Services. Since all transactions with ABB industrial companies are carried out under arm's-length market conditions, both decentralization and full profit responsibility for all business units are upheld. This concept combines the advantages of decentralization with the benefits of combined financial strength and economies of scale.

Financial Services does not confine itself to ABB customers; a substantial part of the business volume comes from transactions with external clients. These transactions are indispensable to keep up with innovations in financial markets, to gain sufficient business volume, and to stay competitive.

ABB Financial Services has two objectives: to maximize synergies with ABB's industrial operations and to be profitable. To reach these goals and to meet the needs of the ABB Group, the Segment's activities have been organized into six Business Areas:

Treasury Centers

These act as internal banks to provide economies of scale in managing the ABB Group's liquid assets, borrowings, and foreign-exchange transactions. All services are offered at competitive market rates. Consulting expertise in the treasury management area is provided by Treasury Consulting. Regional Treasury Centers in Sweden, Norway, Finland, Italy, and the United States are coordinated by the ABB World Treasury Center in Zurich, Switzerland.

Leasing and Financing

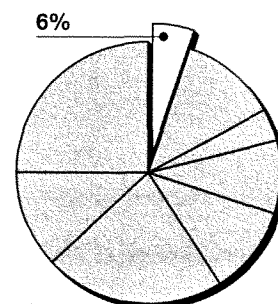
Sales support through financing is becoming increasingly important. ABB Credit provides competitive solutions for financing ABB products and projects. Railway rolling stock, for example, is a rapidly growing sector. ABB Credit also arranges financial packages for third parties, with its main focus on large and complex transactions. ABB Credit is now the largest player in Scandinavia in aircraft leasing.

Trading and Trade Finance

To meet increasing requests for countertrade in international sales of large projects, the London-based Trading group offers comprehensive countertrade services to ABB companies. During 1989, ABB Trading undertook countertrade business worth some \$ 250 million. ABB Trading also has a profitable commodity trading organization working primarily with third-party customers. ABB Project Finance acts as advisor to ABB companies regarding export and project financing.

Segmental Overview

Segment Share of Total Group Revenues



Segmental Overview

Stock Brokerage and Investment Management

ABB Aros Securities in Sweden and Finland offer investment research, corporate finance, and equity and bond trading. Professional management of capital market instruments is provided by investment management companies in Sweden, Finland, the United Kingdom, and the United States. They handle some of ABB's insurance and pension funds as well as funds for external clients.

Insurance

The Sirius insurance group is one of the largest Nordic reinsurance companies. It also has a direct insurance division offering services for industrial customers. The financial insurance and political risk insurance divisions provide insurance solutions where complex political or financial risks are involved. The Sirius group is primarily geared to serving external customers. Captive insurance for the ABB Group is carried out by ABB Captives.

Other Financial Services

To support the ABB Group's Research and Development activities, and to profitably gain access to emerging technologies at an early stage, ABB Venture Capital invests in young, high-tech companies which are active in ABB's core businesses.

Strategy, Future

ABB Financial Services has four basic strategic principles:

First, the Financial Services companies must be "super wholesalers", focusing on large, complex, tailor-made transactions which allow them to add value. Retail transactions requiring high volumes and considerable administration are not compatible with this strategic principle.

Secondly, ABB Financial Services focuses on niches where it has a competitive edge. In this case, ABB's multidomestic strategy means that global financial techniques and products are adapted to local markets and regulations and then applied in a domestic environment. Local presence of ABB industrial companies is necessary to provide a critical mass of customers.

Thirdly, Financial Services is a "people business" and accordingly must constantly attract, develop, and keep its major asset – people. An international trainee and job-rotation program has been developed to provide a pool of top-level professionals for the future.

Making money in the financial field is making money on risk. ABB Financial Services' fourth strategic principle is risk aversion; broking is always preferred to position taking. Should positions be taken, they must be within predefined risk limits. Profitability objectives are not only related to equity but also to the risk taken on each operation. Return on risk is a key operational measure. Back-office and control are of vital importance and much effort is being devoted to developing this area.

1989 was a year of profitable expansion within the framework of our strategy and business areas. Services were extended to a number of newly-acquired industrial companies. Leasing companies were established in Holland, Norway, and the U.S. A stock brokerage firm was incorporated in Finland and an investment management company in the United Kingdom. Sirius opened a new branch office in West Germany and decentralized by incorporating the International and the Industrial & Marine divisions in Sweden as two independent companies.

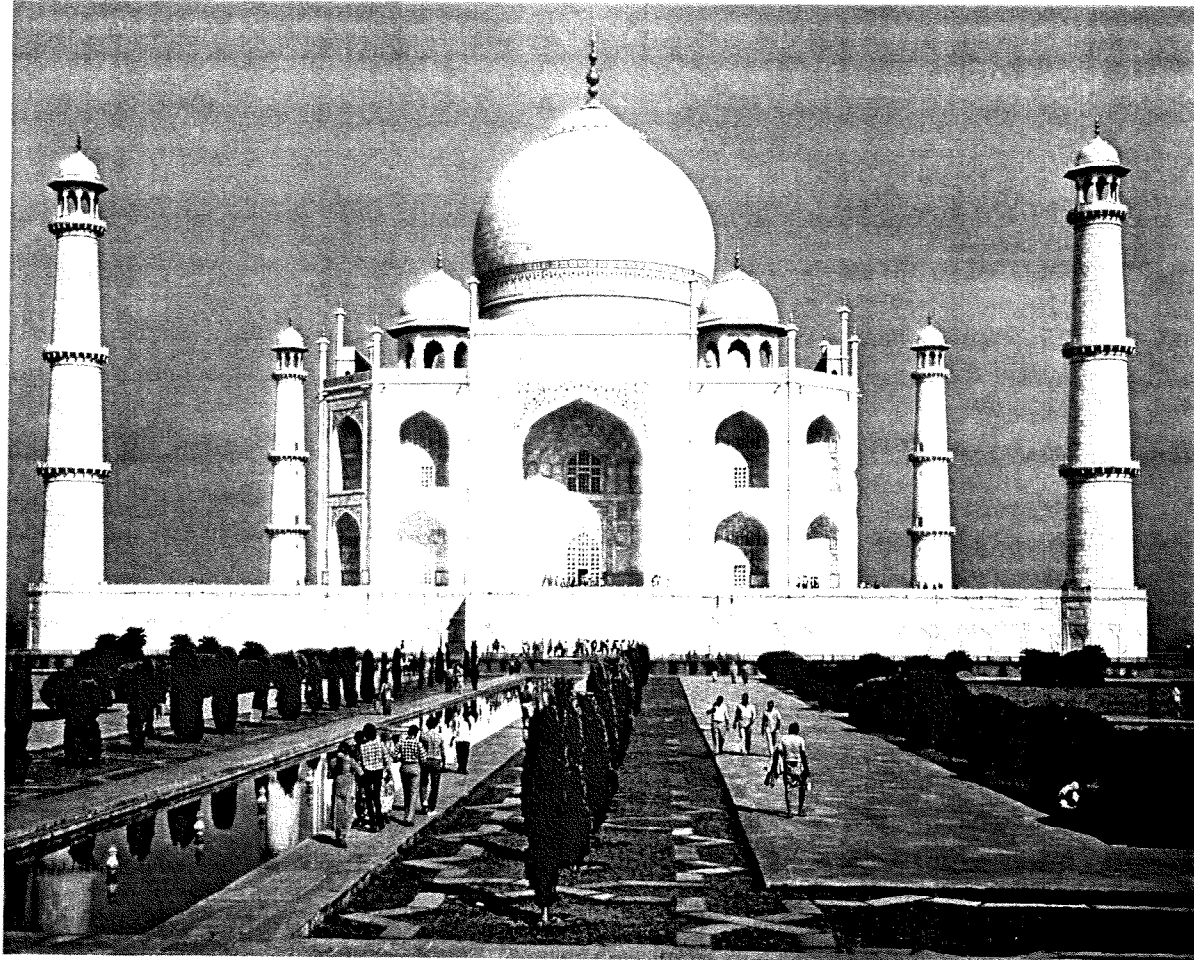


ABB arranges financial packages – including countertrade – to enable third-world countries to improve their infrastructure, as India is doing by building a power plant at the foot of the Himalayas.

1990 will be a year of continued geographical expansion. ABB Financial Services currently offers a full range of services in Scandinavian countries. It will now broaden the financial services offered to ABB companies and external customers in other countries with strong ABB presence. Decisions have already been taken to set up local Treasury Centers in Germany and Switzerland, and to expand activities in the U.S. – where acquisitions have increased ABB's presence and industrial operations.



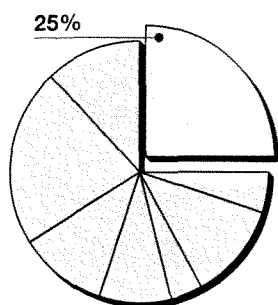
ABB Financial Services' key asset is its people – skilled and creative in developing a range of solutions, not only for the ABB Group but also for third parties.

Various Activities

Segmental Overview

US\$ in millions	1989	1988
Orders received	5,552	5,295
Revenues	5,594	5,375
Operating earnings	341	322
Number of employees	69,657	64,607

Segment Share of Total Group Revenues



Background

All Business Areas that make up the Various Activities Business Segment are connected with the electrotechnical industry. However, because interaction between the various Business Areas as such is limited, they are treated separately below.

Power Lines and General Contracting

The strategic shift of emphasis from the mature Power Lines business to construction and plant contracting was continued. The combination of contracting skills and local presence with projects in ABB's major Business Segments—Power Plants, Transportation, Environmental Control, Industry—seems promising. The acquisition of the SOIMI group in Italy and the ALLCO group in Australia strengthened ABB's position in erection and service in Italy, and in construction in Australia. Through locally-established companies, the Business Area became active in power lines and railway electrification in France, in the contracting business in the U.S., and in transmission lines tower manufacturing in China. The market for overall railway electrification schemes is increasing.

Service

Focus in the Service Business Area is on developing and expanding the service concept for a number of ABB product groups. This ABB service concept calls for closeness to the customers so that their equipment runs with the highest availability and their service resources are kept at a minimum. A wide network of 75 service shops and field service centers in 30 countries is at the customers' disposal. These installations handle both ABB and non-ABB equipment and they also promote sales of new products. Naturally, there are hundreds of manufacturing plants outside the Service Business Area which also provide service.

There is a trend towards more externally purchased service with total maintenance contracts where ABB guarantees availability of customer equipment. This market development together with ABB's continued expansion of the service network has led to a growth rate of some 15 percent per year.

Instrumentation

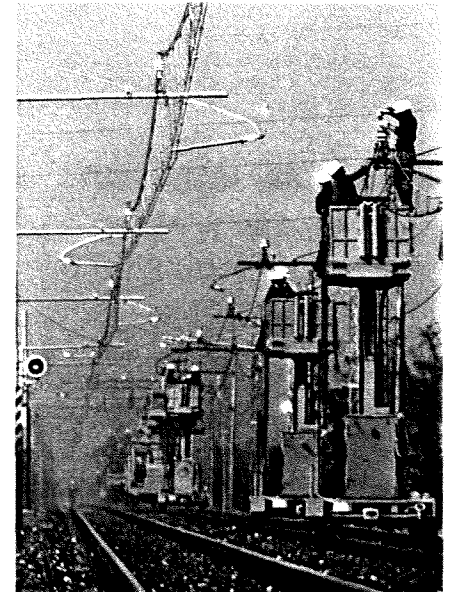
The Instrumentation Business Area includes a wide range of measuring and controlling devices used in industrial processes, in public services, and for laboratory applications.

Orders and sales of water meter and control valves increased significantly. In the face of strong competition, industrial and process instruments performed at levels comparable with 1988. Significant orders received included water purity monitoring stations for power plants in the U.S. and China; control systems for a chemical plant in Eastern Europe, and for glass plants in South Korea, Czechoslovakia, and Poland.

ABB Kent acquired all the shares in IBER-CONTA, Madrid, the leading water meter manufacturer in Spain with affiliates in Venezuela, Colombo, Ecuador, and Mexico. A majority interest was also acquired in Andrea Leonberg, a manufacturer of water meters and related electronic accessories near Stuttgart, West Germany. These complementary acquisitions in terms of technology and geographical market coverage will consolidate



Milan, Northern Italy's vigorous business center where many of ABB's Italian companies are headquartered, shows growing demand for ABB's products and services.



Workers from the ABB subsidiary SAE/Sadelmi replacing part of the electrification system along the Milan-Venice railway line – one of the company's many Power Lines and General Contracting activities.

Motors

The 1989 market conditions were good, production capacity was fully utilized, and earnings for most units developed satisfactorily.

the leading position of the Kent water meters business worldwide. ABB's acquisition of Combustion Engineering offers excellent opportunities for synergies in the areas of process instrumentation and control, and these will be exploited.

In February 1990, ABB offered to buy the 45.5 percent outstanding minority shares of ABB Kent, quoted on the London Stock Exchange.

ABB Motors supplies a full range of industrial AC motors from nine plants. There are six in Europe and the other three in Mexico, India, and Australia. The most important market segments are ventilation, pumps, and machine tools.

During the 1980s, the European market was characterized by demand stagnation and new competition from low-price manufacturers in Eastern Europe. With the resulting overcapacity in Western Europe the current trend is towards fewer and bigger suppliers.

ABB Motors pursues a strategy of serving and supporting its customers with reliable quality and service. Large customers are introducing just-in-time production with ABB Motors as a partner. ABB Motors is committed to becoming a low-cost/high-service producer and the restructuring measures implemented are steadily bringing this goal closer.

Robotics

ABB Robotics is the world's leading industrial robot manufacturer today with more than 18,000 robots currently working in some 30 countries. There are 20 service and training centers. ABB Robotics has a complete product program: all-purpose robots for assembly, welding, painting, glueing, and similar. Furthermore, application packages and complete flexible automation systems are available for the manufacturing industry. The robotics business is R&D intensive and has a high innovation rate, with annual R&D investments around 10 percent of invoicing.

After a slow-down in demand for robots in the mid 1980s and a shake-out of many competitors, market growth in 1989 was back to an annual 15 percent. The new trend is towards supplying complete factory automation solutions instead of individual robots. In 1989 the robotics market was very strong in Europe and the U.S. To further strengthen ABB's posi-

tion in the Far East, agreements for the distribution of robots were signed with Matsushita, Japan, and with the Korean Samsung group.

In Germany, ABB Robotics acquired a majority share in MTA Montage and Test Automation GmbH, active in the automatic assembly of machined parts for automotive transmission products. A small US company engaged in service was also purchased. These acquisitions have enhanced this Business Area's systems supply capability.

Superchargers

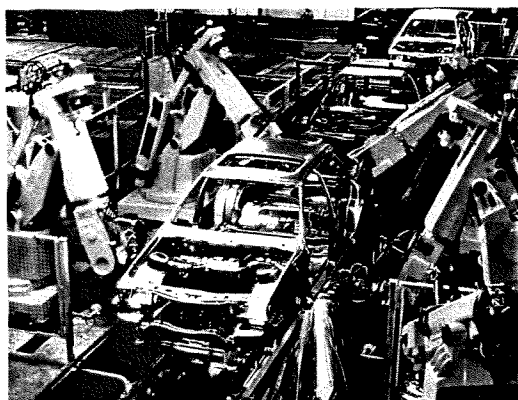
ABB is the world leader in supplying and servicing superchargers for medium and large diesel engines.

Favorable trends in shipbuilding and diesel-fuelled power plants led to an expansion of the business. In addition, ABB's market share increased considerably in diesel traction. Good markets and the restructuring measures implemented brought about a substantial increase in earnings. Additional efforts are being made to penetrate the U.S. and some other markets on an even broader base.

Telecommunications

On March 1, 1989, the telephone switching activities of EB Corporation were divested. Telecommunications today includes activities in the fields of satellite communication, radio links, and military communication systems. During 1989, the EB Corporation further reinforced its position as a leading international supplier of equipment for satellite communications with large orders for aeronautical earth stations in Australia, France, and Canada.

ABB robots have helped produce more than 1 million cars at the Ford plant in Cologne. Complete robot-based systems are enabling many major corporations to achieve more efficient, flexible manufacturing.



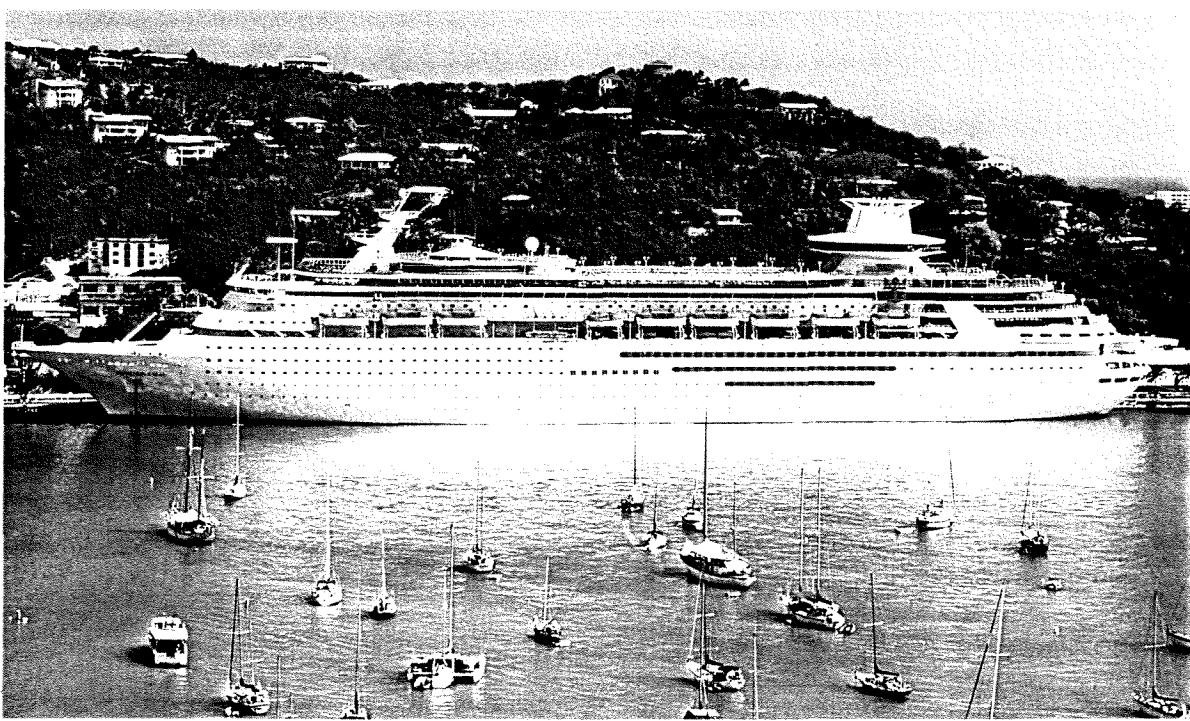


ABB turbochargers boost the engine power of the "Sovereign of the Seas" – the world's largest cruise ship – and also of 28,000 other vessels around the world.

Other Activities

ABB Stotz, ABB CEAG, and Busch-Jaeger in Germany and their subsidiaries in other countries manufacture and sell electrical installation equipment for buildings as well as lighting and safety products, and power supply devices for computers. These companies have leading market positions in their respective product fields all over Europe and in certain overseas markets.

ABB Plast is an industrial materials group specializing in composites and other advanced materials for demanding applications as well as in traditional insulation material. Pucaro, a German pressboard manufacturer, was acquired during 1989 while Makroplast, a Swedish-based injection moulder, was divested. Powdermet, the Swedish venture capital company in powder metallurgy, showed considerable growth in new orders.

ABB Asea Skandia, the largest electrical wholesaler in the Nordic region, is active in the markets for electrical apparatus, white goods, and system-products including electric distribution, fire alarm installations, access control, and cable TV. The group performed well in 1989.

ABB Selfa, which primarily manufactures standard electrical products and insulation material, and ABB Truck, which produces battery-driven forklift trucks, developed according to plan. The integrated circuits

business at ABB HAFO implemented a major investment program.

ABB Energy Ventures deals with more complex modern power plant packages, such as the BOT (build, operate, transfer) and BOO (build, own, operate) projects. Projects are under way in the U.S. and in Turkey.

Broadcasting transmitters including antennas and other product lines, part of the Communication and Information Systems Business Area, were able to strengthen their market position further.

Research and Development

Overview

US\$ in millions	1989	1988
Expenditure for R&D	1,361	1,255

Technology Leadership

ABB is firmly committed to providing customers with economical, future-oriented, and highly reliable solutions to their problems. Thus the overriding objective for ABB's R&D is to be at the forefront of technological development.

The ABB Group's total R&D investment amounts to \$ 1.4 billion (7 percent of sales). More than 90 percent is carried out by the individual Business Areas with full responsibility for both short- and long-term R&D in their own field of operations. They formulate their own R&D strategies, which are then implemented through the combined use of their own, corporate, and external R&D resources.

Corporate R&D Activities

ABB presently operates five corporate research centers in Germany, Sweden, Switzerland, Norway, and Finland and some other research centers, as in the U.S., are under way. These centers concentrate on developing the Group's technological base, and on projects that are by nature very long-term and risk-intensive. A further main corporate research task is to initiate and carry through projects of interest to several Business Areas, so that efforts and resources can be pooled. Finally, ABB is actively involved in various projects in cooperation with universities or other research organizations.

The following strategic corporate R&D programs take priority:

High-Power Semiconductors:

These are key components for many application areas and continued rapid development is foreseen in the 1990s. Microelectronic technologies are being integrated into power semiconductors step by step.

Fuel Cells:

Direct fossil energy conversion into electricity using a static electrochemical generator has made substantial progress through new ceramic substrates and surface coatings.

Insulation:

Future progress in electrotechnical plants and products requires improved insulation systems. A number of R&D projects to raise the level of technology are under way.

High-Temperature Superconductors:

Basic research and a number of application-oriented projects explore these interesting physical phenomena.

Combustion and Energy Exchange:

Projects focusing on increasing conversion efficiency will have a significant impact on reducing the greenhouse effect attributed to CO₂ emissions.

Software and Computer Service:

Development of artificial intelligence systems and software engineering tools will improve the base for future control systems in a number of application areas.

Motors, Drives, and Control Systems:

New permanent magnets for motors and inverter technology directly integrated with the motor will create more flexible and reliable products.



R&D Results Achieved in 1989

After several years of research-center study of the combustion process, a new gas-turbine burner concept was successfully introduced by the Power Plants Segment. Tests under real engine conditions verified the low nitrogen and carbon oxide emissions. At the beginning of the year the combined-cycle plant in Utrecht, Holland, went into operation, rated at 150 MW (gas turbine) plus 75 MW (steam turbine). At 52 percent, the electrical operating efficiency is a world record and at 390 kg per produced MWh, the carbon dioxide emission was measured as the world's lowest. In power plant control, the use of application-specific integrated circuits (ASIC) and computer-aided engineering (CAE) significantly improves performance and quality.

As a result of real-time expert system research, a prototype of tomorrow's control system was shown at INTERKAMA 1989.

Power Transmission has continued to work towards streamlining and upgrading the product portfolio for transformers, high-voltage apparatus, and relays. R&D in reactive power compensation set some milestones in 1989, when ABB was awarded contracts

As adults, these children will depend on solutions to key issues such as energy economy, transportation, environmental protection – areas on which ABB focuses its Research & Development efforts.

with a newly developed technology for series compensation. Based on experience from more than 600 installations, a new system to control electrical networks was also launched.

To study the requirements of power systems for the next century, ABB and the Swedish State Power Board have formed a new company – the Swedish Transmission Research Institute (STRI). The company will engage in engineering studies of transmission systems and full-scale testing of HV and EHV equipment in both clean and contaminated environments.

In Canada, Hydro-Quebec and ABB have jointly established a center for the development of power transmission technologies. This joint venture will assure interaction and pooling of know-how and skills with one of the leaders in the utility industry.

With the introduction of vacuum interrupters for 12 kV/50 kA and 36 kV/25 kA, Power Distribution now has a complete range of vacuum breakers for medium voltage. The standard family of ring main units was also significantly enlarged. In the low-voltage area, a microprocessor-based control system for motor control centers was introduced, which simplifies installation as well as later modifications. Apart from the introduction of new microprocessor-based relays, the circuit breaker program was expanded with a range of products for the North American market.

In the Industry Segment, ABB's leading position for high-voltage semiconductors was again demonstrated through two new thyristors, one rated 8,500 V for HVDC applications and the other 6,500 V for reactive compensation. New product lines of convertors for alternating current in the lower power range up to 3 kW and for 50 to 250 kW were launched to meet the demand from pump, fan, and similar applications. A modular version of the direct current convertor was released for OEM usage.

After several years of successful prototype operation, orders for the new arc furnace were placed by three customers. Electrical mine truck systems contributing to cleaner air in mines were delivered to Canada and Sweden. The ABB Master process control system was developed further. Improvements include a new high-level graphical package and full integration of the Stressometer force measurement system.

1989 was a commercially and technologically successful year for Environmental Control. In October a technical Indoor Climate Center was opened in Jönköping, Sweden. The facility, containing resources for computer simulation and full-scale demonstration, will be a natural meeting point for customers and ABB marketing and research people. A number of R&D projects were executed in response to increased awareness that a good indoor environment promotes health and well-being.

Within the area of flue gas cleaning, a new principle for nitrogen oxide cleaning is under practical test in Sweden. The system operates at lower temperatures than conventional catalytic processes and is therefore cheaper. A pilot plant for detoxification of filter ash from waste incinerators was taken into operation in Switzerland. The results are promising.

The Transportation Segment is continuing its development of the transportation system of tomorrow. Railway equipment with the new drive technology based on second generation thyristor convertors together with extensive computerized control and communication was presented to the market. To meet the demand for fast railway transportation



ABB invests \$ 1.4 billion every year on R&D. It has corporate research centers in Germany, Sweden, Switzerland, Norway, and Finland – and is setting up further facilities in other countries.

where investments for new straight tracks are too high, ABB has developed the high-speed X2 train. It was successfully tested by the Swedish Railways during the past year. Through use of an ingenious tilting mechanism in the bogies, speed can be significantly increased even on existing curved railway lines. Major extensions to the automatic train control system were implemented at the same time. A multipurpose diesel locomotive was launched, which has good operational attributes because of its high degree of electrical/mechanical integration.

In 1989, the Swiss Federal Railways took the first series of a new type of trainset for commuter traffic into operation in the Zurich area. The drive units of these trainsets represent a revolutionary breakthrough for gate turn-off thyristor-based convertors.

Significant technological progress was achieved in several areas of the Various Activities Segment. In the Power Lines field, tests of the new design for 40 percent lower and cheaper overhead lines were successfully carried out. A new turbocharger product line with increased efficiency was launched to meet the demand for improved fuel utilization in power turbine applications.

The development of high-speed drives for compressor and pump applications with speeds up to 10,000 rpm is continuing. A prototype was delivered for field tests. The robotics product program was enlarged with a range of gantry robots. In Instrumentation there is continuous product enhancement through utilizing microprocessor technology in combination with advanced communication and display techniques. A unique cable length meter was introduced for contact-free measuring under production conditions.

Board of Directors

Fritz Leutwiler (born 1924), Co-Chairman.
Switzerland.

Curt Nicolin (born 1921), Co-Chairman.
Sweden.

Bernd Müller-Berghoff (born 1930)
Federal Republic of Germany.

Stephan Schmidheiny (born 1947)
Switzerland.

Gaston Thorn (born 1928)
Luxembourg.

Peter Wallenberg (born 1926)
Sweden.

Heinrich Weiss (born 1942)
Federal Republic of Germany.

The **Chief Executive Officer** and **Deputy Chief Executive Officer** of **ABB Asea Brown Boveri** participate in Board meetings, but have no voting rights.

Auditors

KPMG Klynveld Peat Marwick Goerdeler SA
Zurich, Switzerland.

Group Executive Management

Percy Barnevik (born 1941) President and Chief Executive Officer	
Business Segment	Environmental Control
Business Region	Italy

Thomas Gasser (born 1933) Deputy Chief Executive Officer	
Corporate Staffs	Audit, Control, Corporate Development, Legal Affairs, Management Resources, Taxes and Customs

Arne Bennborn (born 1932) Executive Vice President	
Business Regions	West and South Asia, Southeast Asia, Northeast Asia, Japan, Australasia, Africa and the Arabian Peninsula, Latin America

Erwin Bielinski (born 1926) Executive Vice President	
Business Segment	Power Plants (Hydro and Nuclear Power Plants, Power Plant Control)

Sune Carlsson (born 1941) Executive Vice President	
Business Segments	Power Distribution, Various Activities (Instrumentation, Motors, Robotics)
Business Regions	France, Ireland, Norway, UK

Eberhard von Koerber (born 1938) Executive Vice President	
Business Segment	Various Activities (Superchargers, Other Activities Germany)
Business Regions	Federal Republic of Germany, Austria, Benelux countries, Eastern Europe, Greece
Corporate Staffs	Information, Marketing

Göran Lindahl (born 1945) Executive Vice President	
Business Segment	Power Transmission

Göran Lundberg (born 1940) Executive Vice President	
Business Segment	Power Plants (all fossil Power Plants)

Bertold Romacker (born 1933) Executive Vice President	
Business Segment	Various Activities (Communication and Information Systems, Integrated Circuits, Telecommunications)
Corporate Staffs	Research, Technology

Gerhard Schulmeyer (born 1938) Executive Vice President	
Business Segment	Industry
Business Region	USA, Canada

Edwin Somm (born 1933) Executive Vice President	
Business Region	Switzerland

Bert-Olof Svanholm (born 1935) Executive Vice President	
Business Segments	Transportation, Various Activities (District Heating, Service, Other Activities Sweden)
Business Regions	Denmark, Finland, Iceland, Portugal, Spain, Sweden

Lars Thunell (born 1948) Executive Vice President	
Business Segment	Financial Services, Various Activities (Energy Ventures)
Corporate Staffs	Finance, Insurance and Risk Management, Investor Relations, Project Finance, Purchasing and Export Control, Real Estate

Management

Corporate Staffs

Audit	Renato Fassbind (starting May 1, 1990)
Control	Jean-Pierre Dürig / Tomas Ericsson
Corporate Development	Bengt Skantze
Finance	Günter Bauer
Information	Heinz Haussmann
Insurance and Risk Management	Hans Peter Leuenberger
Investor Relations	Per Ljungberg/ Jan Hedman
Legal Affairs	Beat Hess
Management Resources	Arne Olsson
Marketing	Bruno Broich
Project Finance	Gunnar Johannesson
Purchasing and Export Control	Roland Andersson
Real Estate	Walter Stücklin
Research	
– Federal Republic of Germany	Adolf Josef Schwab
– Norway	Markus Bayegan
– Sweden	Jan Martinsson
– Switzerland	Maurice Campagna
Taxes and Customs	Alfred Storck
Technology	Klaus Ragaller

Business Area Managers

Power Plants	
Gas Turbine Power Plants	Anton Roeder
Utility Steam Power Plants	Alfred Hohn
Industrial Steam Power Plants	Lars Vågman
Pressurized Fluidized Bed Combustion	Carsten Olesen
Hydro Power Plants	Gorm Gundersen
Nuclear Power Plants	Lennart Fogelström/ Manfred Simon
Power Plant Control	Michael Pöhr
All Power Plants Business Areas	
– in the Federal Republic of Germany	Manfred Simon
– in Sweden	Lars Torseke
– in Switzerland	Fritz Gautschi

Power Transmission

High Voltage Switchgear	Anders Narvinger
Power Systems	Anders Fraggstedt
Network Control	Willy Roos
Power Transformers	Sune Karlsson
Distribution Transformers	Olaf Mehus
Relays	Ulf Gundemark
Cables and Capacitors	Lars Erik Wirsén
MicaComp	René Schnidrig
Electric Metering	Edwin Becnel
All Power Transmission Business Areas	
– in the Federal Republic of Germany	Sune Karlsson
– in Sweden	Anders Narvinger
– in Switzerland	Willy Roos

Power Distribution

Low Voltage Apparatus	Tom Sjökvist
Low Voltage Systems	Tom Sjökvist
Installation	Tom Sjökvist
Medium Voltage Equipment	Rolf Schaumann
Distribution Plants	Kurt Håkansson
All Power Distribution Business Areas	
– in the Federal Republic of Germany	Tom Sjökvist
– in Switzerland	Nicolaas Hellinga

Industry

Metallurgy	Holger Schubert
Process Automation	Jörgen Centerman
Drives	Thorolf Damén
Marine, Oil and Gas	Jan Wennesland
All Industry Business Areas	
– in the Federal Republic of Germany	Rainer Grohe
– in Sweden	Lars Erik Lindbäck
– in Switzerland	Alois Sonnenmoser

Transportation

Rolling Stock	Eric Kocher
Fixed Installations	Eric Kocher
Signalling	Reidar Kuvaas

Environmental Control	
Fläkt	Björn Stigson
– Industrial Processes	Jerry Leitman
– Indoor Climate	Markku Nihti
– Gadelius	Göran Holmquist
– Service	Anders Berg
– Components	Bo Malmgren
– Cooling	Erik Herrmann

Financial Services	
Treasury Centers	Jan Roxendal
Leasing and Financing	Thomas Hjelm
Trading and Trade Finance	Kjell Åkesson
Management Team	Gunnar Johannesson
	Richard Molvidson
Stock Brokerage and Investment Management	Peggy Bruzelius

Various Activities	
Communication and Information Systems	Bertram Thurnherr
District Heating	Soren Vinther
Energy Ventures	Peter Giller
Instrumentation	John Notley
Integrated Circuits	Erik Björck
Motors	Birger Titusson
Other Activities Germany	Georg Demling
Power Lines and General Contracting	Luigi Ruggieri
Robotics	Stelio Demark
Service	Göran Wikström
Superchargers	Heinrich Uehlinger
Telecommunications	Asbjörn Birkeland

Regional and Country Managers

Western Europe – European Community	
Belgium	Hubert van Vreckem
Denmark	Kaare Vagner
France	Gilles Breguet
Germany (Federal Republic)	Eberhard von Koerber
Greece	Olof Doverholt
Ireland	Diarmuid O'Sullivan
Italy	Giovanni Bertola
Luxembourg	Jos Graas

Netherlands	Hendrik Kok
Portugal	Hans Henning Hjort
Spain	José Montes Heredia
United Kingdom	Eric Drewery/ John Notley

Western Europe – EFTA

Austria	Klaus Woltron
Finland	Matti Ilmari
Norway	Kjell Almskog
Sweden	Bert-Olof Svanholm
Switzerland	Edwin Somm

Eastern Europe and the USSR Region

Martin Thomann

North America

Canada	Peter Janson
USA	Gerhard Schulmeyer

Latin America Region

Roberto Müller

Africa and the Arabian Peninsula Region

Peter Felix

Australia, Japan, New Zealand

Australia	Ian Imrie
Japan	Werner Flückiger/ Göran Holmquist
New Zealand	Ove Stoltz

Northeast Asia Region

John Kempster

Southeast Asia Region

Gösta Björkenstam

West and South Asia Region

Amiya Bhattacharyya

Management's Discussion – Analysis of the Group

Key Figures

(US\$ in millions, unless otherwise stated)

	Total Group		Industrial Operations		Financial Services	
	1989	1988	1989	1988	1989	1988
Orders received	21,640	17,822	20,218	16,757	1,422	1,065
Revenues	20,560	17,832	19,114	16,786	1,446	1,046
Operating earnings after depreciation	1,257	854	1,176	780	95	74
Earnings after financial items	922	560	835	484	101	76
Net income	589	386	530	334	68	52
Stockholders' equity	3,907	3,122	3,308	2,531	608	591
Total assets	24,156	18,965	22,351	18,082	9,234	4,694
Capital expenditure for property, plant, and equipment	783	736	766	677	17	59
Capital expenditure for acquisitions	3,090	544	3,084	517	6	27
Operating earnings/revenues	6.1%	4.8%	6.2%	4.6%	–	–
Return on equity	16.8%	12.5%	18.2%	n/a	11.3%	n/a
Return on capital employed	17.0%	13.6%	15.5%	n/a	–	–
Return on total assets	–	–	–	–	10.1%	n/a
Interest coverage ratio	2.4	2.2	2.6	2.1	–	–
Debt/equity ratio	1.4	0.8	1.6	1.2	–	–
Capital turnover rate	0.95	0.93	0.95	n/a	–	–
Number of employees	189,493	169,459	188,896	168,944	597	515

n/a = not available

Market Conditions and Sales

With only a few exceptions, Western industrial countries showed continued good growth in 1989. Towards the end of the year, however, there was a slackening tendency in some countries such as Scandinavia and the United States, although others such as Germany showed no signs of a downturn. The newly industrialized countries in Asia continued their steady growth whereas the situation in developing countries remained more or less unchanged. In the long term, the dramatic political upheaval in Eastern Europe in late 1989 should bring economic revival to this region and have a positive impact on Europe as a whole.

Power utility investments remained at a low level in most industrial countries, although certain niches like gas turbines and combined cycle showed good growth. Furthermore,

demand for infrastructural equipment in the railway, industrial, and particularly the environmental areas continued to increase.

Against this background, ABB's orders received in 1989 totaled \$ 21,640 million, an increase of 21 percent compared to the \$ 17,822 million reported in 1988. Adjusted for acquisitions/divestitures and for changes in dollar exchange rates, the increase was 17 percent. Among European countries, Italy, the Netherlands, Spain, Sweden, and Switzerland performed well; the strongest growth was recorded in North America, Asia, and Australia. Major orders received during the year included several gas turbine/combined cycle plant orders from the United States, a high-voltage direct current (HVDC) installation in New Zealand, three orders for production equipment for Japanese pulp mills, and a number of large orders for railway and mass transit equipment from various countries. In

addition, the British railway vehicle manufacturer BREL, in which ABB has a 40 percent holding, received two domestic orders totaling some \$ 800 million. Orders received by BREL are not included in the above order-intake figure.

On a segmental basis, orders received developed positively in Power Plants, Power Transmission, Industry, Transportation, and Environmental Control.

Revenues grew by 15 percent, totaling \$ 20,560 million (1988: \$ 17,832 million). The order backlog at the end of 1989 amounted to \$ 18.1 billion, compared to \$ 15.9 billion at end 1988.

Personnel and Organization

The number of employees in the ABB Group at year end totaled some 190,000, compared to 170,000 a year earlier. Personnel was reduced in a number of countries, but at the same time acquisitions added employees. When including the acquisition of Combustion Engineering, the number of employees increases to some 220,000; if associated companies were included as well, this figure would be 240,000.

The Group's 1,150 companies, divided into some 3,500 individual profit centers, are the product of ABB's decentralized organizational philosophy. In 1989 and early 1990, a number of new companies were formed out of the larger ABB industrial companies primarily in Austria, Australia, Finland, Germany, Italy, and Switzerland. In Switzerland, for example, the Baden-based company with 15,000 employees was subdivided into some 20 separate legal entities, each managed independently.

This increased decentralization requires a good supply of management talent to run the many profit centers. Rapid expansion of ABB through internal growth as well as acquisitions underlines the need to generate management resources. ABB's policy is to develop and train managers via internal recruitment from its large base of highly-educated employees. Management development programs as well as international trainee programs are being upgraded and expanded in regional headquarters as well as local coun-

try organizations. Furthermore, programs are under way to give managers and specialists international experience and exposure by utilizing the excellent opportunities provided by ABB's international matrix organization.

Investments and Capital Expenditure

Acquisitions

As a result of extensive restructuring within the electrotechnical industry, 1989 and the beginning of 1990 were characterized by a continued high level of ABB acquisitions, joint ventures, divestitures, and cooperation agreements (see table on pages 46-47).

This meant investing \$ 3,090 million in acquisitions in 1989, compared to \$ 544 million in 1988. More than 40 companies were acquired, although not all consolidated by ABB, together accounting for some \$ 7-8 billion in sales and approximately 70,000 employees.

The largest single transaction was the \$ 1.56 billion acquisition of the U.S.-based Combustion Engineering Group, of which \$ 1.45 billion was paid in 1989. This acquisition was finalized early in 1990 and is to be consolidated as of January 1, 1990; it will increase ABB's North American sales to \$ 6-7 billion, and employees to 40,000. Hereby, ABB has reached its strategic objective of becoming a full-fledged domestic North American supplier.

Most of the major changes in the structure of the industry in Europe and the United States probably occurred in 1988 and 1989, but some further changes can still be expected. Moreover, the opening up of Eastern Europe will lead to more restructuring which, in turn, will also affect Western Europe. ABB has committed itself to participate in this process.

Major Acquisitions, Joint Ventures, and Divestitures in 1989 and early 1990

January 1989 – Agreement reached with Ansaldo to establish four joint ventures covering boilers, steam turbines, generators, and power transformers in Italy. Total sales exceed \$ 1 billion; 10,000 employees. A 40% holding acquired in BREL Ltd, the leading railway vehicle manufacturer in the UK. Some \$ 500 million in sales and 8,500 employees.

February – ABB/Westinghouse joint venture for transmission and distribution in the United States, Brazil, and Argentina finalized. Sales amount to \$ 1 billion; some 10,000 employees.

The Ericsson Group's signalling and safety systems operations acquired. \$ 120 million in sales and 1,000 employees.

Parts of ABB's telecommunications activities divested.

The steam turbine division of AEG Kanis in Germany acquired; \$ 100 million in sales and some 1,000 employees.

Soimi, an erecting company headquartered in Milan, with 1,100 employees and \$ 80 million in sales acquired by SAE Sadelmi.

March – In Sweden, freight car maintenance company created. Swedish State Railways own 40%. \$ 70 million in sales and 700 employees.

ABB (70%) and Jeumont-Schneider S.A. (30%) formed joint company in France to manufacture industrial drives. \$ 35 million in sales and 350 employees.

May – Emerson Electric's U.S. Industrial Service Division acquired, with 13 workshops, 250 employees, and \$ 30 million in sales.

Joint venture to sell ABB Robotics products in Japan formed with Matsushita Electric Industrial Co.

June – The Westinghouse Canada transmission and distribution activities acquired for some \$ 100 million. \$ 150 million in sales and 1,000 employees.

October – 19% of the outstanding minority shares in Asea Brown Boveri AG, Mannheim, acquired for \$ 210 million. ABB ownership increased to 97%.

Decision taken to acquire remaining 55% in the ABB/Westinghouse joint venture. Total acquisition price approximately \$ 700 million.

In Switzerland, a 45% participation in Ascom Radiocom AG was sold. \$ 230 million in sales and almost 2,000 employees.

Capital Expenditure

ABB Group capital expenditure in 1989 amounted to \$ 783 million (1988: \$ 736 million), with \$ 223 million (1988: \$ 157 million) in land and buildings and \$ 560 million (1988: \$ 579 million) in machinery and equipment.

The increase in 1989 is mainly a result of incremental capital expenditure in the companies acquired, as well as a certain increase in countries where substantial restructuring has led to specialization in production. Excluding acquisitions, capital expenditure for property, plant, and equipment in 1990 is expected to be at the same level as 1989.

Financial Review

Financial Activities

The high level of acquisition activity within ABB together with the refinancing of Group debt has meant a very active year for the Group's international funding vehicle – the ABB World Treasury Center. Substantial increases in the Miracle, U.S., and Euro Commercial Paper programs were carried out in 1989. As a result of changes in U.S. tax laws, a new U.S. Commercial Paper program of \$ 1 billion was launched in March 1990 to locally finance ABB's U.S. operations. The Group's

November – Global Engineering, active in engineering and consulting for the oil and gas market, acquired. \$ 40 million in sales and 750 employees.

November/December – Agreed public tender offer for Combustion Engineering (C-E) launched. C-E's principal activities are in power generation, power services, environmental and process control, and engineering. \$ 3.5 billion in sales and 29,000 employees – mainly in the U.S. The acquisition was completed in January 1990. Acquisition price \$ 1.56 billion.

December – ABB (50%) and Northern Engineering Industries (50%) formed NEI ABB Gas Turbines Ltd. The joint company to supply gas turbines, cogeneration and combined-cycle plants mainly for the UK market.

Swiss-based waste incineration company, W+E Umwelttechnik, acquired. \$ 50 million in sales and 85 employees.

Joint venture in railway engineering with Thyssen in Germany to be formed. \$ 600 million in sales and 3,600 employees.

LENAB, a joint venture company manufacturing large gas turbines to be formed with LMZ of Leningrad. 66.6% participation in the battery company Anker-Soennak divested. \$ 40 million in sales and 370 employees.

Danish electric wholesaler Skandia-Havemann EI A/S divested. \$ 75 million in sales and 300 employees.

James Watt, an electrical installation group in Australia, acquired for \$ 22 million. \$ 55 million in sales. Hägglunds Traction in Sweden acquired. \$ 30 million in sales and 380 employees.

January 1990 – Agreement reached to form a Polish joint venture company, ABB Zamech Ltd, in the power generation field. ABB to have majority ownership. Zamech today has 5,000 employees.

Georgia Kaolin and C-E Minerals, subsidiaries of C-E, to be sold. \$ 250 million in sales and some 1,200 employees.

Takeover offer announced for the outstanding minority shares in the Australian engineering and transformer group, Tyree Industries. \$ 80 million in sales and 1,000 employees.

Agreement reached to acquire and reconstruct the CCC Group, Spain's largest electrotechnical company. \$ 200 million in sales and some 3,000 employees.

Makroplast, a Swedish plastics company, divested. \$ 18 million in sales and 180 employees.

February – U.S.-based ABB Electric sold for \$ 54 million. \$ 100 million in sales and 500 employees. Public tender offer to acquire all ordinary shares of UK-based ABB Kent (Holdings) plc announced. ABB already owns 54.5%. Offer values the minority shares at some \$ 100 million.

first bond loan was issued in October 1989 – a five year ECU 150 million issue at 8¾ percent, which was swapped into floating U.S. dollars.

ABB's credit rating on its long-term debt was raised by Moody's in 1989 to Aa2 and by Standard & Poor's (S&P) to AA. Short-term, ABB already has the highest possible rating – A-1+ from S&P and P-1 from Moody's. The above loans are supported by Keep Well Agreements between the issuing entity and ABB Asea Brown Boveri Ltd. The ABB Group ratings thus also apply for the issuing entities.

In December 1989, the share capital of ABB Asea Brown Boveri Ltd was increased by

\$ 500 million (SFr. 780 million). The two parent companies, ASEA AB and BBC Brown Boveri Ltd, each subscribed half of the new share capital. Initially, \$ 300 million was paid up, with the remainder to be paid in 1990.

Financial Statements

The Financial Services operations are distinctly different from the Group's industrial operations from a balance sheet viewpoint and, to a certain extent, also with regard to the income statement. In addition to the total Group consolidated accounts, separate financial statements for industrial operations

and for financial services – with accompanying note and ratios – have been compiled. This has been done to provide stockholders and other interested parties with additional relevant information and to make it easier to see the effects of the Group's ongoing capital rationalization programs on the balance sheet for industrial operations.

Financial Position

Liquid assets for the total Group amounted to \$ 4,332 million at year end 1989 (year end 1988: \$ 3,496 million). The rise in liquid assets is mainly a result of earnings, effects from the capital rationalization programs, the equity increase in ABB Asea Brown Boveri Ltd, Zurich, and an increase in debt. The high acquisition activity in 1989 has to a large extent been financed by debt, which has led to a rise in net interest expense. The negative trend in net interest expense will continue in 1990, but should partially be compensated by divestitures, the continuing effects of capital rationalization, and incrementally higher earnings from acquisitions. Operating cash flow was strongly positive in 1989 and should continue to be so in 1990.

Capital rationalization

Overall good progress was made in the projects to reduce capital employed. Within the area of trade receivables, a Group coordinated project, the Cash Race, has been running since January 1988. Its target was to reduce trade receivables – measured in days of sales outstanding (DSO) – from 81 to 65 over a two-year period, thus releasing some \$ 800 million in capital. At the end of 1989, DSO was at 67 – slightly above the target.

Progress has also been made in reducing inventories, although rationalizing physical assets tends to take a long time. Following the big relative reduction between 1987 and 1988, inventories (in percent of revenues) were reduced from 30 percent in 1988 to 28 percent in 1989. Unchanged relative inventory would have meant more than \$ 400 million higher absolute inventory at the end of 1989. Compared to the level at the end of 1987, the improvement in relative inventories corresponds to almost \$ 1.8 billion. There is still much to be done in this area, however. A further reduction in inventories as a result

of ongoing projects in all Business Segments is anticipated in 1990.

In the area of fixed assets, reductions have been achieved in machinery, as well as land and buildings through the restructuring measures carried out. In particular, good progress was made with regard to consolidating the Group's real estate assets. Regional real estate companies have been or will be formed in the major countries. Market rents are being introduced for ABB industrial companies, which means increased incentives to reduce occupied space, but also to relocate to cheaper sites. Freed-up space can then be rented to third parties, divested, or redeveloped. In 1989, divestments alone led to some \$ 300 million in capital being released through major transactions in Finland, Germany, Italy, Norway, Sweden, and Switzerland. There is substantial potential for further real estate divestments.

Foreign Exchange Effects

The U.S. dollar remained basically unchanged vis-à-vis the major European currencies when comparing year-end 1989 exchange rates to those prevailing a year earlier. Thus, when making year on year comparisons, the Group balance sheet – for which year-end exchange rates are used – was only marginally affected by currency changes. The average U.S. dollar exchange rates, which are used in preparing the income statement, were some 5 percent stronger in 1989 compared to the average exchange rates in 1988. This had a shrinking effect on ABB's volume and earnings figures in 1989.

Earnings

Operating earnings after depreciation for the ABB Group in 1989 rose by 47 percent to \$ 1,257 million (1988: \$ 854 million). The strongest earnings growth was reported by the Power Transmission and Industry Business Segments, but also Power Distribution and Environmental Control showed good growth. The Power Plants Segment continued to be a major profit contributor, while the Financial Services Segment continued to grow from an already profitable base. In the Various Activities Segment, good profit growth was reported by the Robotics and Superchargers Business Areas as well as the installation material companies, and from the wholesale operations in Sweden and Finland. The Service Business Area was also a major earnings contributor.

On a regional basis, good earnings performance was reported from Finland, Germany, Spain, Sweden, and Switzerland. Outside Europe, strong earnings growth was achieved in both the United States and Canada as well as in certain companies in Asia.

Earnings after financial items totaled \$ 922 million in 1989, an increase of 65 percent compared to the preceding year (1988: \$ 560 million). Net financial items include \$ 21 million in earnings from associated companies. The main contributors were the UK-based railway manufacturer BREL and Franco Tosi Industriale in Italy, but the figure was also negatively affected by the performance of the Danish railway manufacturer Scandia-Randers.

Nonrecurring costs in 1989, mostly caused by restructuring activities, totaled \$ 265 million (1988: \$ 620 million). Nonrecurring income, mostly capital gains on real estate and industrial company divestitures, amounted to \$ 254 million (1988: \$ 596 million), resulting in a net charge of \$ -11 million (1988: \$ -24 million).

Total Group taxes are the sum of all paid and deferred taxes from ABB companies. Through tax consolidations in countries where this is standard procedure and by utilizing tax loss carry forwards, total taxes were limited to \$ 283 million in 1989 (1988: \$ 127 million). This corresponds to an overall tax rate of 31 per-

cent (1988: 24 percent). This rise is a result of high profit growth leading to earnings increases being taxed at the nominal rate in certain countries.

Net income for 1989 increased by 53 percent and amounted to \$ 589 million (1988: \$ 386 million). Return on equity totaled 16.8 percent (1988: 12.5 percent).

Outlook

There are signs of a more general slowdown in the world economy. For ABB this should primarily have an effect on standard products, which have limited backlog and are sold to the manufacturing and construction industries. Some investment goods for the pulp and paper and the steel industries will also be affected. Overall, this will have a limited effect on ABB in 1990, since the backlog is big, investment goods come late in the business cycle, and a substantial part of ABB's business is directed at infrastructure investments – which have their own cycles.

The many acquisitions and joint ventures in 1988–89 and continuing into 1990 were strategically important and have enhanced ABB's position for future long-term earnings growth. However, they will tend to have a negative effect on the short-term result, since major restructuring costs often come in the first one or two years whereas improvements in earnings can only be realized gradually. On the other hand, the positive effects of the restructuring and rationalization measures after the original merger as well as from some of the earlier acquisitions will continue to increase earnings. There is still considerable potential left even after the improvements achieved in 1989, and the full effects of measures taken in 1988–89 are not yet visible.

In 1990, earnings after financial items are expected to increase compared to earnings in 1989. Longer term, ABB anticipates continued steady earnings growth, primarily from margin improvements but also from volume increases.

Management's Discussion – Analysis of the Business Segments

Data per Business Segment (US\$ in millions)

	Orders Received		Order Backlog	
	1989	1988	1989	1988
Power Plants	3,151	2,194	5,288	4,715
Power Transmission	4,828	3,376	3,895	3,164
Power Distribution	2,644	2,522	1,272	1,078
Industry	2,292	1,966	1,620	1,415
Transportation	1,119	993	2,321	2,053
Environmental Control	3,115	2,786	2,170	1,870
Financial Services	1,422	1,065	–	–
Various Activities	5,552	5,295	2,532	2,938
Total	24,123	20,197	19,098	17,233
Intra-Group transactions	– 2,483	– 2,375	– 1,026	– 1,335
Net Total	21,640	17,822	18,072	15,898

	Revenues		Operating earnings after depreciation	
	1989	1988	1989	1988*
Power Plants	2,795	2,510	219	231
Power Transmission	4,775	3,619	288	28
Power Distribution	2,516	2,480	140	106
Industry	2,019	2,047	131	22
Transportation	957	747	57	46
Environmental Control	2,843	2,511	130	77
Financial Services	1,446	1,046	95	74
Various Activities	5,594	5,375	341	322
Total	22,945	20,335	1,401	906
Intra-Group transactions	– 2,385	– 2,503	– 144**	– 52**
Net Total	20,560	17,832	1,257	854

* Pro forma figures ** Includes corporate items

	Capital Expenditure		Number of employees	
	1989	1988	1989	1988
Power Plants	92	103	16,230	16,081
Power Transmission	125	101	34,978	23,569
Power Distribution	54	52	25,121	24,769
Industry	61	53	15,110	15,200
Transportation	38	18	6,801	4,732
Environmental Control	81	98	20,999	19,986
Financial Services	17	59	597	515
Various Activities	319	278	69,657	64,607
Total	787	762	189,493	169,459
Intra-Group transactions	– 4	– 26	–	–
Net Total	783	736	189,493	169,459

Power Plants

Major Business Areas in the Power Plants Segment

	Orders Received US\$ in millions	
	1989	1988
Gas Turbine Power Plants	783	420
Utility Steam Power Plants	845	690
Industrial Steam Power Plants	406	251
Hydro Power Plants	532	344
Nuclear Power Plants	254	226
Power Plant Control	225	251
Other	106	12
Total	3,151	2,194

Demand in the market for gas turbines and combined-cycle plants increased strongly, especially in the U.S. In other power generation markets demand was still at a stable but relatively low level. In this environment, orders received for the Segment in 1989 increased by 44 percent to \$ 3,151 million. A number of large orders in the U.S. as well as in Saudi Arabia and Taiwan contributed to strong growth in the Gas Turbine Business Area. Other strong performers were Hydro Power, boosted by a \$ 109 million project in India; and Industrial Steam, where acquisitions, mainly in Germany, were a major factor behind the increase. A high volume of orders for service and retrofit, especially in Utility Steam, as well as for nuclear fuel also contributed to the Segment's growth.

Revenues in 1989 showed more modest growth of 11 percent (adjusted for acquisitions and changes in U.S. dollar exchange rates it was 12 percent) and amounted to \$ 2,795 million. No major projects were invoiced in 1989.

Operating earnings in 1989 amounted to \$ 219 million, somewhat lower than earnings in 1988. Good earnings growth was achieved by the Gas Turbine and Industrial Steam Business Areas through a combination of cost reduction measures and volume increases. Profitability in Utility Steam, Hydro Power, and Nuclear Power remained at a good level in 1989. However, as a result of exceptionally good performance in 1988, earnings in these Business Areas were some-

what lower. Costs incurred from unusually extensive technical development work also affected earnings. On a regional basis, earnings in Norway, Switzerland, and the U.S. showed good growth.

Major organizational and restructuring measures were implemented in 1989. These included specialization and streamlining of production and engineering between Germany and Switzerland, integrating the former AEG Kanis operations into ABB, and turning the Power Plants activities in Germany, Italy, and Switzerland into separate legal entities. At the same time, a number of joint ventures and acquisitions were negotiated and/or finalized.

The full positive impact of these restructuring measures will not be evident until 1990 and later. At the same time, integrating the Combustion Engineering power generation activities into ABB will substantially affect the Segment's size as well as its product and market breadth.

Power Transmission

Business Areas in the Power Transmission Segment

	Orders Received US\$ in millions	
	1989	1988
High Voltage Switchgear	981	834
Power Systems	266	106
Network Control	116	162
Power Transformers	910	585
Distribution Transformers	666	231
Relays	294	202
Cables and Capacitors*	1,275	1,101
Electric Metering	110	-
MicaComp	210	155
Total	4,828	3,376

*As of 1989, the Elektrokoppar Business Area is accounted for in the Cables and Capacitors Business Area. Figures for 1988 have been adjusted accordingly.

Although the major Power Transmission markets continue to show limited growth, orders received for the Segment increased by 43 percent and amounted to \$ 4,828 million in 1989. Adjusted for acquisitions and changes

in dollar exchange rates, the increase was 16 percent. Cables and Capacitors, Power Systems, Distribution Transformers, and Power Transformers all showed substantial increases in orders received. Regionally, good growth was reported from Sweden. Strong growth was achieved in Italy and the U.S. through acquisitions. The Westinghouse-ABB T&D Co. in the U.S. developed positively, with sales of about \$ 1 billion.

Revenues, which amounted to \$ 4,775 million in 1989, increased by 32 percent with most Business Areas contributing to this increase. Three major HVDC projects were successfully commissioned during the year.

Operating earnings for the Segment amounted to \$ 288 million, a substantial improvement compared with the result in 1988. The effects from restructuring measures undertaken are now visible, particularly in High Voltage Switchgear, Power Transformers, and Relays. Power Systems showed satisfactory earnings following major cost overruns in large projects in 1988. Cables and Capacitors maintained their high profitability level. Unsatisfactory earnings were reported by Network Control – due to cost-overruns in certain complex projects, and by the Electric Metering Business Area – where the economic situation in Argentina and fierce competition were the main causes. Corrective measures are already under way in both these Business Areas. All other Business Areas achieved satisfactory earnings. Regionally, a major turnaround in earnings was achieved in Germany and Switzerland, while Sweden and Italy improved from an already good level. The acquisitions in the U.S., Canada, and Italy did not substantially contribute to earnings after financial items in 1989.

In some areas, restructuring activities were finalized in 1989. In countries with newly acquired companies, like the United States and Canada, restructuring activities will continue. High priority is being given to capital rationalization and productivity improvement. These factors will contribute to the anticipated further improvement in earnings in 1990.

Power Distribution

Business Areas in the Power Distribution Segment

	Orders Received US\$ in millions	
	1989	1988
Low Voltage Apparatus	426	386
Low Voltage Systems	266	297
Installation	1,070	1,128
Medium Voltage Equipment	636	546
Distribution Plants	246	165
Total	2,644	2,522

Demand for Power Distribution products, systems, and services remained at a good level in 1989. Orders received for the Segment in 1989 amounted to \$ 2,644 million, slightly higher than the good level already achieved in 1988. Two projects, in India and Iraq, contributed to the strong order intake in Distribution Plants. Low Voltage Apparatus and Medium Voltage Equipment also reported good growth. As a result of restructuring and a downturn in some of the major markets, orders received for Low Voltage Systems and Installation decreased compared to 1988.

Revenues were somewhat higher than in 1988 and amounted to \$ 2,516 million.

The strategy of emphasizing increased earnings rather than volume was successfully pursued during 1989. Operating earnings amounted to \$ 140 million, more than 30 percent above the 1988 level. Medium Voltage Equipment showed exceptionally strong performance as the result of measures aimed at reducing costs and capital. Good earnings growth was also reported by Low Voltage Apparatus, achieved through merging sales organizations and specializing in R&D and production. The result in Installation was negatively affected by an export order and a decline in the Norwegian market; profit performance in Finland and Sweden, however, was strong. For the Segment as a whole, good earnings were reported from Italy, Finland, and Sweden. Good earnings growth was achieved in Switzerland and Germany.

Although the economies in several countries appear to be slowing down, good profit increase for the Segment is expected in 1990.

Industry

Business Areas in the Industry Segment

	Orders Received US\$ in millions	
	1989	1988
Drives	1,005	911
Marine, Oil and Gas	276	260
Metallurgy	450	350
Process Automation	561	445
Total	2,292	1,966

The global market for industrial equipment and services developed positively in 1989. Demand for new investments and re-vamping of existing plants was high in pulp & paper, metallurgy, cement, and other industries requiring process automation. For ABB this has led to a 17 percent increase in orders received for the Segment, amounting to \$ 2,292 million in 1989. All Business Areas showed good growth during the year, the largest increases being reported by Process Automation and Metallurgy. Apart from a favorable market, growth for Process Automation is attributable to gains in market share and selective penetration of new areas such as the chemical, pharmaceutical, and petrochemical industries. The Drives Business Area consolidated its leading position in Europe while the Marine, Oil and Gas Business Area reported strong increases, mainly in Germany.

On the whole, revenues in 1989 were slightly down and amounted to \$ 2,019 million. There were sizable differences between the various Business Areas with Marine, Oil and Gas showing a substantial decline – mainly due to the downturn in the Norwegian market, while Drives and Process Automation showed increases. The good order intake situation in 1989 will impact positively on revenues in 1990.

The Industry Segment experienced a major turnaround in 1989 with operating earnings amounting to \$ 131 million. From an already profitable base, Drives improved operating earnings further in 1989. This was mainly achieved through productivity increases, particularly in the Finnish units. Process Automation and Metallurgy showed

strong earnings growth, albeit from a very depressed level. Reductions in capital, personnel, and other costs in combination with good market conditions contributed to the increase. Despite declining revenues, Marine, Oil and Gas maintained earnings at the same level as in the previous year.

In addition to the numerous restructuring measures carried out in 1989, further reorganizational steps will be implemented in 1990. These include reallocating certain activities from the Metallurgy to the Drives and Process Automation Business Areas, and the creation of separate legal entities for the Segment's Swiss and German operations.

Although the business climate in 1990 might deteriorate somewhat compared with 1989, good volume growth – excluding acquisitions – is still anticipated. Furthermore, the industrial activities of Combustion Engineering will add some \$ 1,200 million in sales, mainly in markets and/or application areas where ABB's presence so far has been limited. Integrating these activities will lead to a major reshaping of the total Industry Segment. Necessary short-term restructuring measures will be compensated by substantially improved market positions long-term.

Transportation

Business Areas in the Transportation Segment		
	Orders Received US\$ in millions	
	1989	1988
Rolling Stock	838	894
Fixed Installations	145	99
Signalling	136	—
Total	1,119	993

Global demand for railway equipment continued to be high. Orders received for the Segment in 1989 amounted to \$ 1,119 million, an increase of some 13 percent compared to 1988. In addition to the fully-consolidated companies accounted for in the figure above, the ABB Group has a number of associated companies active within the Transportation area. If these were included, orders received for 1989 would total some \$ 2,200 million. Furthermore, there are other ABB companies partially active in the railway electrification field that are not accounted for in the Transportation Business Segment.

The strong growth reported by the fully-consolidated entities was mainly a result of greater market penetration in the U.S. as well as the acquisition of the signalling business from the Swedish Ericsson group. Of the associated companies, the UK-based BREL group – in which ABB acquired a 40 percent holding in 1989 – had exceptionally high order intake during 1989.

The strong order intake in the last few years, together with the signalling business acquisition, contributed to the \$ 957 million in revenues achieved in 1989 – an increase of 28 percent compared to 1988.

Operating earnings in 1989 improved somewhat and amounted to \$ 57 million. Results have been negatively affected by investments in overseas markets and a temporary downturn in the Swedish market. There is still room for substantial growth both in volume and margin. Earnings varied for the associated companies, none of which are included in the Segment's operating earnings figure. BREL developed well while Danish-based Scandia-Randers, in which ABB has a 33 percent holding, showed a considerable loss.

Restructuring measures are mainly directed at decentralization and other organizational changes including integrating specialized R&D resources within the Segment. A program to decrease inventories was initiated, which should show decisive results in 1990.

The Transportation Segment expects continued growth both in existing and in new markets. This increase in volume coupled with programs to improve profitability should lead to increased earnings over the next few years.

Environmental Control

Business Areas in the Environmental Control Segment		
	Orders Received US\$ in millions	
	1989	1988
Industrial Processes	900	807
Indoor Climate	1,061	1,059
Gadelius	718	487
Service	211	202
Components	205	161
Cooling	182	203
Elimination	–162	–133
Total	3,115	2,786

Growing awareness of the importance of environmental protection and efficient use of energy in combination with a strong global economy impacted favorably on demand in 1989. Orders received for the Segment amounted to \$ 3,115 million, an increase of some 12 percent compared to 1988. Thus between 1987 and 1989, orders received increased by some 65 percent or, excluding acquisitions, by 45 percent. Strong demand from the automotive as well as the pulp and paper products industries in North America, Sweden, and Finland contributed to the good order increase reported by Industrial Processes in 1989. Indoor Climate grew – in domestic currencies – mainly as a result of strong business activity in the Finnish and Swedish construction industry. Several large orders for process equipment from the Japanese pulp industry had a positive effect on orders received at Gadelius.

Revenues in 1989 amounted to \$ 2,843 million – an increase of 13 percent compared to 1988. Growth primarily came from Industrial Processes in North America and from the Indoor Climate Business Area in the Nordic countries.

The Segment continued to show strong earnings growth, with operating earnings increasing by 69 percent to \$ 130 million in 1989. Indoor Climate showed a marked earnings increase as a result of rationalization and reorganization measures following recent acquisitions. Good sales increases from the pulp and the power industries in Japan contributed to the rise in earnings at Gadelius. Earnings in the Components Business Area developed well through improved margins, as well as increased volume – partially as a result of acquisitions. Earnings in Industrial Processes decreased because of cost overruns in several air pollution control projects. Regionally, the Nordic Countries and North America reported good performance.

Restructuring measures, particularly in Indoor Climate, should result in lower costs and increased productivity in 1990. This, in combination with continued volume increases and no further project losses in Industrial Processes, should lead to continued earnings growth in 1990.

Financial Services

Major Business Areas in the Financial Services Segment

	Operating Earnings after Depreciation US\$ in millions	
	1989	1988
Treasury Centers	45	22
Leasing and Financing	9	12
Insurance	24	32
Trading and Trade Finance	10	1
Investment Management and Stockbrokerage	7	7
Total	95	74

The Financial Services Segment has two objectives: to maximize synergies with ABB's industrial operations and to be profitable.

The majority of the synergies are found within the sales support as well as the asset and risk management areas. In the Leasing and Financing Business Area, for example, ABB Credit and EFAG signed sales support business in 1989 worth \$ 250 million. The Swedish Project Finance entity participated in ABB projects resulting in some 20 different contracts totaling \$ 400 million in sales volume. Trading generated countertrade contracts with a sales value exceeding \$ 250 million.

Within asset and risk management, the Treasury Centers Business Area lent more than \$ 6 billion to ABB Group companies. Through utilizing the internal foreign exchange netting system, ABB's industrial companies made sizable savings in 1989. Cash management studies were completed by the Treasury Consulting division in 15 ABB units covering operations in seven countries.

Good results were also achieved with regard to the Segment's second objective, profitability. From an already good level, operating earnings after depreciation increased to \$ 95 million (1988: \$ 74 million). Continued expansion of the ABB Group led to additional Regional Treasury Centers being established, thus broadening ABB's ability to profit from managing risk positions on money and foreign exchange markets. This has contributed to the exceptionally good results achieved by

the Treasury Centers Business Area in 1989. The Trading Business Area also showed good earnings growth, mainly as a result of strong performance in its U.S. operations. The decrease in operating earnings for Insurance was a consequence of lower investment income. However, the Business Area did succeed in improving its insurance result, despite 1989 being an exceptionally tough year for the industry.

A very substantial share of the Segment's assets relates to internal lending by Treasury Centers to ABB Group companies, to inventories in Trading, and to investments by the Insurance Business Area. Return on equity in 1989 amounted to 11.3 percent. Excluding the insurance company Sirius, which is over-capitalized, return on equity would have amounted to 19.1 percent.

In 1990, Financial Services will continue its strategy of establishing itself in countries with a strong ABB industrial base. Earnings are expected to increase in 1990.

Various Activities

Major Business Areas in the Various Activities Segment

	Orders Received US\$ in millions	
	1989	1988
Power Lines and General Contracting	1,102	1,038
Service	441	384
Instrumentation	345	331
Motors	330	328
Robotics	286	222
Communication and Information Systems	212	122
Superchargers	203	206
Telecommunications	173	344
District Heating	115	125
Integrated Circuits	44	43
Other Activities Sweden	971	1,010
Other Activities Germany	770	663
Miscellaneous	560	479
Total	5,552	5,295

As there is limited interaction among the Business Areas making up the Various Activities Business Segment, the larger Business Areas are treated separately below.

To compensate for the downward trend in the power line market, the Power Lines and General Contracting Business Area is undergoing a strategic shift towards the construction and general contracting markets. Against this background, the Business Area has increased orders and revenues mainly through acquisitions. Low level of activity in the power line market together with significant contract losses in a subsidiary led to lower operating earnings in 1989. Following the SAE-Sadelmi merger in January 1989, substantial restructuring measures were implemented during the year. Gradually increasing earnings are expected in 1990.

Market conditions in 1989 for the Service Business Area were generally good. However, as service is largely a local business, there were considerable regional variations. Overall, volume increased by some 15 percent. Strong growth was achieved in the North American market mainly through the

acquisition of the Emerson Electric Service Division. Earnings growth was moderate in 1989, but should pick up substantially in 1990, primarily through volume increases.

The Instrumentation Business Area is made up of the ABB Kent group, ABB Metra-watt in Germany, and ABB Goerz in Austria. The ABB Kent group showed good growth in both orders and revenues, even without including the acquisition of Iberconta in Spain. Earnings also developed positively. Performance in 1989 at ABB Goerz and ABB Metra-watt was below expectations.

The restructuring measures within the Motors Business Area have resulted in a solid base for good earnings growth in 1990. These measures included production specialization, creating separate motor companies, and increased focus on capital employed. A substantial profit improvement was already achieved in 1989, mainly through increased productivity.

The Robotics Business Area has strengthened its leading position on the robotics market. Demand, especially in Europe, was strong in 1989, with orders increasing by nearly 30 percent to \$ 286 million. Earnings continued to develop very positively. Robotics is well placed to meet its strategic objectives through substantial investments in R&D and continuous efficiency improvements.

Demand from the shipbuilding industry and from diesel-fuelled power stations remained strong. This led to a continued good volume level in the Superchargers Business Area in 1989. Productivity increased at the same time, which resulted in increased earnings from an already good level. Further improvement programs are under way which, together with selective market penetration, should lead to even better performance in 1990.

The Communication and Information Business Area showed an upswing in volume in 1989, partly due to reorganization. Continued positive earnings development is foreseen in 1990. The Telecommunications Business Area showed a sharp decline in volume as a result of divestitures. Earnings are improving.

ABB Asea Skandia – the largest electric wholesaler in the Nordic countries – is also the largest operation within Other Activities

Sweden. Good performance was reported from Skandia's Swedish and Finnish operations, while performance in the Norwegian and, above all, the Danish operations was unsatisfactory. In Norway, the downturn in the market led to a consolidation of activities. Activities in Denmark have been divested. The ABB Plast operations specialize in insulation materials, composites, and other advanced materials. Good volume growth was achieved in 1989, partly through acquisitions, although earnings were relatively weak.

The installation material companies – the core of Other Activities Germany – showed strong profit and volume increases in 1989. Growth came from both Germany and other key European markets and was helped by a healthy business climate. Operating earnings developed positively as a result of cost reductions, particularly in overheads and through capital rationalization. Market shares were increased. In 1990, volume and earnings are expected to continue to grow and special emphasis will be placed on strategic issues relating to the 1992 single European market.

Consolidated Income Statement

(US\$ in millions)

		Total Group	
Year ended December 31		1989	1988
Revenues	Note 1	20,560	17,832
Material expenses		-9,545	-8,251
Personnel expenses		-6,068	-5,625
Other expenses		-3,407	-2,749
Changes in work in progress and finished goods		266	161
Depreciation of fixed assets	Note 2	-549	-514
Operating Earnings after Depreciation		1,257	854
Earnings from associated companies		21	-
Dividend income		8	13
Interest income		641	504
Interest on advances		-300	-270
Interest expense	Note 3	-731	-565
Exchange differences		26	24
Earnings after Financial Items		922	560
Nonrecurring items	Note 4	-11	-24
Income before Taxes		911	536
Taxes	Note 5	-283	-127
Net Income before Minority Interest		628	409
Minority interest		-39	-23
Net Income		589	386

Split Income Statement (Note 20)

Industrial Operations		Financial Services	
1989	1988	1989	1988
19,114	16,786	1,446	1,046
-8,514	-7,570	-1,031	-681
-6,017	-5,590	-51	-35
-3,141	-2,518	-252	-231
266	161	-	-
-532	-489	-17	-25
1,176	780	95	74
21	-	-	-
8	13	-	-
504	452	607	350
-300	-270	-	-
-599	-513	-602	-350
25	22	1	2
835	484	101	76
-5	-24	-6	-
830	460	95	76
-262	-103	-26	-24
568	357	69	52
-38	-23	-1	-
530	334	68	52

Consolidated Balance Sheet

(US\$ in millions)

		Total Group		
December 31		1989	1988	
ASSETS	Current Assets			
	Cash and marketable securities	Note 6	4,332	3,496
	Trade receivables		4,397	4,120
	Other current receivables	Note 7	1,710	1,377
	Unpaid share capital		200	—
	Inventories	Note 8	5,774	5,375
	Total Current Assets		16,413	14,368
	Fixed Assets			
	Financing receivables	Note 9	1,076	540
	Shares and participations	Note 10	2,183	394
	Intangible assets		437	153
	Construction in progress		123	76
	Machinery and equipment	Note 11	1,887	1,565
	Land and buildings	Note 11	2,037	1,869
	Total Fixed Assets		7,743	4,597
TOTAL ASSETS		24,156	18,965	
Assets Pledged		Note 16	712	—
LIABILITIES AND EQUITY	Current Liabilities			
	Trade payables		2,622	2,527
	Provisions		3,334	2,860
	Other current liabilities	Note 12	2,907	2,427
	Short-term loans	Note 13	4,346	1,379
	Total Current Liabilities		13,209	9,193
	Advances from Customers			
			3,379	3,394
	Medium- and Long-term Loans			
		Note 14	1,746	1,541
	Pension Liabilities			
			1,235	1,040
	Deferred Taxes			
			212	289
	Minority Interest			
			468	386
	Stockholders' Equity			
		Note 15		
Share capital		1,750	1,250	
Restricted reserves		808	730	
Retained earnings		760	756	
Net income		589	386	
Total Stockholders' Equity		3,907	3,122	
TOTAL LIABILITIES AND EQUITY		24,156	18,965	
Contingent Liabilities		Note 17	1,196	829

Split Balance Sheet (Note 20)

Industrial Operations		Financial Services	
1989	1988	1989	1988
4,068	3,826	2,858	1,472
4,311	3,797	100	333
1,039	1,220	5,041	1,708
200	-	-	-
5,700	5,074	74	301
15,318	13,917	8,073	3,814
513	319	1,014	669
2,142	348	41	46
399	113	38	40
123	76	-	-
1,849	1,470	38	95
2,007	1,839	30	30
7,033	4,165	1,161	880
22,351	18,082	9,234	4,694
2,468	2,297	171	240
2,977	2,836	357	24
2,647	2,041	1,017	2,254
4,799	1,878	5,518	1,042
12,891	9,052	7,063	3,560
3,379	3,394	-	-
1,127	1,541	1,289	392
1,228	1,034	7	6
57	152	160	137
361	378	107	8
2,778*	2,197*	540*	539*
530	334	68	52
3,308	2,531	608	591
22,351	18,082	9,234	4,694

* Total of share capital, restricted reserves, and retained earnings

Consolidated Statement of Changes in Financial Position (US\$ in millions)

	Total Group	
Year ended December 31	1989	1988
Financing from Operating Activities		
Revenues	20,560	17,832
Material expenses	-9,545	-8,251
Personnel expenses	-6,068	-5,625
Other expenses	-3,407	-2,749
Changes in work in progress and finished goods	266	161
Financial items	-335	-294
	1,471	1,074
Change in current receivables	-610	-306
Change in short-term loans; Financial Services		
Change in current noninterest-bearing liabilities	1,049	553
Change in inventories	-399	37
Change in advances from customers	-15	112
Net current assets from purchased and sold companies	362	-6
	387	390
Nonrecurring items after adding back capital gains	-265	-620
Current taxes	-281	-141
Minority interest	-39	-23
	-585	-784
Net Financing from Operating Activities	1,273	680
Investments		
Change in financing receivables	-536	-366
Capital expenditure for:		
Acquisitions: shares and participations, asset buy-outs	-3,090	-544
Machinery and equipment, land and buildings	-783	-736
Sales of shares, machinery and equipment, land and buildings	444	1,052
Net Investments	-3,965	-594
External Financing		
New issue paid up	300	-
Change in short-term loans; Group and Industrial Operations	2,967	-589
Change in medium- and long-term loans	205	-569
Change in pension liabilities	195	-8
Change in minority interest	82	-123
Net external financing from purchased and sold companies, net of cash acquired	-85	32
Dividends	-133	-
Translation differences and other	-3	65
Net External Financing	3,528	-1,192
Change in Cash and Marketable Securities	836	-1,106

Split Statement of Changes in Financial Position

(Note 20)

Industrial Operations	Financial Services
1989	1989
19,114	1,446
-8,514	-1,031
-6,017	-51
-3,141	-252
266	-
-341	6
1,367	118
-333	-3,100
-	4,476
918	-973
-626	227
-15	-
362	-
306	630
-261	-4
-310	29
-38	-1
-609	24
1,064	772
-194	-345
-3,084	-6
-766	-17
431	13
-3,613	-355
300	-
2,921	-
-414	897
194	1
-17	99
-85	-
-133	-
25	-28
2,791	969
242	1,386

Principles for Consolidated Financial Statements

1 General

Uniform principles are applied in the consolidated financial statements of the Asea Brown Boveri Group, except where otherwise stated.

2 Principles of Consolidation

The consolidated financial statements include ABB Asea Brown Boveri Ltd and substantially all companies in which the parent company, directly or indirectly, has more than 50 % of the voting rights or over which it exerts decisive influence. A few majority holdings of relatively minor importance to the Group as well as companies and institutions serving a social purpose are not consolidated. Companies acquired in the year under review are consolidated as from the date of acquisition, whereas companies divested of during the year are excluded from consolidation from the beginning of the year. Companies which are acquired too late in the year to be consolidated in accordance with the Group's accounting principles are included at cost under "Shares and participations" and consolidated only as from the following year.

The consolidated financial statements have been prepared in accordance with the purchase method, whereby the cost of acquisition of shares in subsidiaries is eliminated against the stockholders' equity of those subsidiaries at the time of acquisition. Any resulting difference is recorded either entirely as goodwill or as corrections to the carrying value of the assets and liabilities acquired, with any balance being treated as goodwill. Such goodwill is written off against stockholders' equity in the year of acquisition unless very substantial, in which case it is amortized according to a plan drawn up in each individual case.

The equity method is used for accounting for material investments in companies where the parent company, directly or indirectly, has not less than 20% and not more than 50% of the voting rights ("associated companies"). In the Consolidated Income Statement, shares of earnings in associated companies have been included after operating earnings. If nonrecurring items and income taxes are material in arriving at earnings from associated companies, such items are included with the Group's other nonrecurring items and income taxes respectively. In the Consolidated Balance Sheet investments in major associated companies are reported at acquisition cost, adjusted by dividends and share of earnings or losses after the date of acquisition.

Assets, liabilities and equity as well as income and expenses of consolidated companies

are reflected in their entirety in the consolidated financial statements. The shares in net income and equity attributable to minority shareholders are stated separately in the consolidated income statement and balance sheet.

Orders received and revenue figures are reported only to the extent that they relate to third parties. Interest income, interest expense and dividends between Group companies as well as intra-group liabilities and receivables are eliminated. Internal transfer prices are based on market prices. Unrealized intercompany profits are eliminated.

3 Revenues

Revenues include sales invoiced, other operating income and interest on advances.

The Group has a high proportion of advances from customers. Customer advances lead to lower gross margins than for orders without advance payments, i. e. operating earnings can be said to contain a hidden interest cost. In order to make the Group financial statements more easily comparable with those of other companies, interest is calculated on advances from customers, and is included in both revenues (and also operating earnings) and interest on advances captions.

4 Revenue Recognition

Sales of products and services are recognized on the date of delivery. The sales amount is net of sales or value added taxes, returned goods, discounts and rebates. Income from long-term contracts is recognized at agreed invoicing and delivery dates. For Group companies in those countries where it is mandatory to use the percentage-of-completion method, this method has been applied both in the individual company and in the Group.

Provisions are made to cover all anticipated losses on loss-making contracts.

5 Foreign Currency Translation

Assets and liabilities in foreign currencies of the individual companies have generally been reported at the lower/higher of the year-end exchange rate and the exchange rate at the date when the asset/liability was recorded. Cash and marketable securities have been reported at year-end exchange rates, while receivables and liabilities covered by forward contracts are stated at contracted future rates. Advances from customers

have not been revalued, but are shown at rates at the dates when such advance payments were received, since repayment is not anticipated.

As regards operations of Treasury Centers, the consolidated financial statements allow for market value changes in the portfolio of forward contracts in foreign currencies. At the same time, receivables and liabilities not covered by forward contracts are reported at year-end exchange rates. The resulting unrealized exchange gains/losses are included in the determination of net income after recognition of applicable deferred income taxes.

Exchange gains and losses in individual companies are reported in the income statement either under other expenses or under exchange differences.

Financial statements of Group companies expressed in other currencies are translated into US\$ at year-end rates of exchange with respect to the balance sheet, and average rates of exchange for the year with respect to the income statement. Translation adjustments are included in stockholders' equity and have no effect on net income. However, financial statements of subsidiaries in high-inflation countries are translated in accordance with the temporal method as follows:

- Monetary assets and liabilities are translated at year-end rates of exchange.
- Inventories (raw materials, work in progress and finished goods), property, plant and equipment, and advances from customers are translated at appropriate historical rates of exchange.
- Income and expense items are translated at average rates of exchange, except for cost of goods sold and depreciation, which are translated at appropriate historical rates of exchange.
- Translation adjustments are included in the determination of net income.

Exchange rate differences arising from loans taken as hedges for investments in subsidiaries have been included in stockholders' equity in the consolidated statements in as far as they correspond to translation differences for the relevant subsidiaries taken directly to equity. Deferred tax assets/liabilities have been set up where appropriate. The same procedure has been applied for intra-group foreign currency transactions of a long-term investment nature.

6 Land, Buildings, Machinery and Equipment

Land, buildings, machinery and equipment are stated at cost, except that certain revaluations

have been made in accordance with the accounting practices prevailing in certain countries, less accumulated depreciation.

Buildings, including revaluations when applicable, are depreciated for financial reporting purposes on the straight-line method over their estimated useful lives. Machinery and equipment are also depreciated on the straight-line method over two-thirds of their estimated useful lives, which corresponds to using the degressive depreciation method over their estimated total useful lives.

The depreciation periods are:

- buildings 25 to 50 years
- machinery and equipment 3 to 15 years
- production tools (other than wear and tear tools which are expensed) 3 years

7 Research and Development

Significant costs are incurred each year in connection with research, development, and engineering programs. Such costs are expensed as incurred, except to the extent recoverable under existing contracts.

8 Trading Activities in Marketable Securities Centers

Marketable securities and other financial instruments traded on a professional basis are stated at market value, after consideration of the related financing costs.

9 Inventories

Purchased goods are generally stated at the lower of cost – determined on the basis of weighted average prices or by the "first-in, first-out" method – or replacement value, while manufactured goods are valued at the lower of manufacturing cost or net realizable value. Appropriate provisions are made for obsolescence.

10 Financing Receivables

Financing receivables comprise loans mainly to companies in which ABB has shares and participations as well as receivables arising out of leasing company activities.

11 Accounting for Pensions

Various arrangements for pensions and termination indemnities exist within the Group. All commitments when not funded with external parties are actuarially computed and accrued in the balance sheet. Pending contributions/fundings to outside entities are recorded up to the full commitment.

12 Provisions

Provisions provide cover for identifiable warranties, penalties, loss orders, committed costs for delivered plant orders and rationalization measures, currency and country risks.

13 Taxation

All taxes estimated to be ultimately payable on reported income, capital, and property are provided for. These taxes are calculated in accordance with the tax regulations in force in each country. Unrecoverable withholding taxes paid on dividends received are included in the tax charge for the year.

In addition, deferred taxes on income are provided for those items of income and expenses which affect both the financial statements and the income tax assessment, but in different periods (timing differences). The timing differences relate mainly to accelerated depreciation on machinery and equipment and buildings, reserves for future investments and inventory reserves as permitted by the tax laws in certain countries. In determining the tax rate, the liability method is used for those timing differences which are expected to reverse within the foreseeable future. For those timing differences that are not expected to reverse within the foreseeable future (normally more than three years) a tax rate of 30 % has been used. No deferred taxes are provided for timing differences not expected to reverse. The tax benefits of loss carry-forwards are recognized if the likelihood of realizing those benefits within twelve months is virtually assured.

14 Orders Received and Order Backlog

Amounts stated for orders received and order backlog are expressed at the price level estimated for the date of delivery of each order.

15 Split of ABB's Financial Statement into Industrial Operations and Financial Services

The financial statements of the Group are basically presented on a consolidated basis for all companies. However, Financial Services form an important part of the activities of the Group. From a balance-sheet point of view, this part is distinctly different from the rest of the Group's activities, i.e. the industrial operations. These additional financial statements with accompanying note and ratios between the two parts will give stockholders and others substantially more information.

16 Definition of Key Ratios

a) Return on equity

Return on equity is calculated as net income as a percentage of average stockholders' equity.

b) Return on capital employed (Group and industrial operations)

Return on capital employed is calculated as earnings after financial items plus interest expense and exchange differences as a percentage of average capital employed. Capital employed consists of stockholders' equity, minority interest, pension liabilities, and short-, medium- and long-term loans.

c) Return on total assets (Financial Services only)

Return on total assets is calculated as earnings after financial items plus interest expense and exchange differences as a percentage of average total assets.

d) Debt/equity ratio (Group and industrial operations)

Debt/equity ratio is calculated as interest-bearing current, medium- and long-term liabilities excluding pension liabilities divided by stockholders' equity plus minority interest.

e) Interest coverage ratio (Group and industrial operations)

Interest coverage ratio is calculated as earnings after financial items plus interest expense on financial liabilities divided by interest expense on financial liabilities.

17 Exchange Rates

	ISO Codes	Average 1989	Year-end 1989	Average 1988	Year-end 1988
Australian Dollar	AUD	1.26	1.26	1.28	1.17
Austrian Schilling	ATS	13.07	11.89	12.26	12.51
Canadian Dollar	CAD	1.18	1.16	1.23	1.19
Danish Krone	DKK	7.23	6.57	6.68	6.86
Deutsche Mark	DEM	1.86	1.69	1.74	1.78
Finnish Markka	FIM	4.26	4.03	4.17	4.17
French Franc	FRF	6.31	5.79	5.91	6.06
Italian Lira	ITL	1,358.70	1,265.80	1,292.00	1,309.00
Netherlands Guilder	NLG	2.10	1.91	1.96	2.00
Norwegian Krone	NOK	6.86	6.58	6.49	6.56
Pound Sterling	GBP	0.61	0.62	0.56	0.55
Swedish Krona	SEK	6.41	6.20	6.10	6.13
Swiss Franc	CHF	1.62	1.54	1.45	1.50

Notes to the Consolidated Financial Statement

(US\$ in millions)

Note 1 Revenues

Revenues include the following items:

	1989	1988
Invoiced sales	19,636	17,052
Other operating income	624	510
Interest on advances	300	270
Total	20,560	17,832

The licence income amounts to \$ 35 million (\$ 15 million).

Note 2 Depreciation of fixed assets

	1989	1988
Machinery and equipment	472	443
Land and buildings	58	61
Goodwill	19	10
Total	549	514

Goodwill on the acquisition of Group companies was amortized in 5 cases at 4 percent per year in one case $6\frac{2}{3}$ percent per year, and in all other cases directly written off against equity.

Note 3 Interest expense

Interest expense is made up of the following items:

	1989	1988
Interest on pension liabilities	82	80
Interest on financial liabilities	649	485
Total	731	565

Note 4 Nonrecurring items

	1989	1988
Capital gain/loss on sales of participations	4	92
land and buildings	250	504
Restructuring expenses	-224	-568
Other nonrecurring items	-41	-52
Total	-11	-24

Note 5 Taxes

	1989	1988
Current taxes, income	-242	-100
Current taxes, other	-39	-41
Deferred taxes	-2	14
Total	-283	-127

Note 6 Cash and marketable securities

	1989	1988
Cash and bank	1,647	1,255
Marketable securities	2,685	2,241
Total	4,332	3,496

Placements totaling \$ 477 million (\$ 1,785 million) relating to interest arbitrage transactions are reported as net figures in 1989.

Note 7 Other current receivables

	1989	1988
Non-trade receivables	1,151	904
Prepaid expenses/accrued income	304	269
Advances to suppliers	238	197
Advances to contractors	17	7
Total	1,710	1,377

Note 8 Inventories

	1989	1988
Materials	1,107	1,149
Work in progress	3,929	3,602
Finished goods	738	624
Total	5,774	5,375

Note 9 Financing receivables

	1989	1988
Loans granted	549	540
Investment in financing leases	527	—
Total	1,076	540

Note 10 Shares and participations

Holdings in nonconsolidated subsidiaries	Book value
Combustion Engineering Inc, Stamford	1,453
Fabbrica Turbine e Caldaie, FTC Legnano s.r.l.	236
W+E Umwelttechnik AG, Zurich	35
Tyree Industries Ltd, Moorebank	24
Total	1,748

Holdings in equity accounted companies (more than 20% and less than 50%)	Book value
Franco Tosi Industriale S.p.A., Legnano	161
Ansaldo ABB Componenti, Genova	66
Skeiegruppen A.S., Kristiansand	15
BREL Group Ltd, Derby	7
Brown Broveri-York Kälte und Klimatechnik GmbH, Mannheim	4
Allen Bradley/Strömberg Inc., Milwaukee	1
Scandia-Randers A./S., Randers	0
Total	254

Holdings in other companies (less than 50%)	Book value
BBC Brown Boveri AG, Baden (held in trust)	24
IXYS Corporation Inc, San José	16
Advent Futures, Partnership, Baden	8
Svenska Charterintressenter KB, Stockholm	7
Swedish Aircraft one KB, Linköping	7
Ansaldo Gie S.p.A., Milan	6
Industrial Ceramic Inc, Pittsburgh	6
Midland Cogeneration Venture, Ltd, Partnership, Purchase	5
Stena Danicas Intressenter KB, Göteborg	4
Svenska Elgrossist AB SELGA, Stockholm	4
Västerås Kongresscenter, Västerås	3
SAE Guangzhou Galvanized Steel Structure Co. Ltd, Guangzhou	3
Others	88
Total	181

Note 11
Tangible fixed assets

	Machinery and equipment		Land and buildings		Total	
	1989	1988	1989	1988	1989	1988
Acquisition value	5,002	4,196	2,666	2,437	7,668	6,633
Accumulated financial depreciation	-3,142	-2,640	- 729	- 682	-3,871	-3,322
	1,860	1,556	1,937	1,755	3,797	3,311
Undepreciated amount of accumulated write-ups	27	9	100	114	127	123
Residual value of fixed assets	1,887	1,565	2,037	1,869	3,924	3,434

Note 12
Other current liabilities

	1989	1988
Taxes due	288	194
Non-trade payables	1,269	1,227
Accrued expenses/deferred income	1,350	1,006
Total	2,907	2,427

Note 13
Short-term loans

	1989	1988
Part of medium- and long-term loans falling due within one year	161	122
Other short-term loans	4,185	1,257
Total	4,346	1,379

Note 14
Medium- and long-term loans

Currency	ISO Codes	Local currency in millions		US\$ in millions	
		1989	1988	1989	1988
Swiss Franc	CHF	948	917	614	610
U.S. Dollar	USD	454	286	454	286
Norwegian Krone	NOK	1,126	1,428	171	218
Swedish Krona	SEK	1,687	1,323	272	216
Italian Lira	ITL	169,620	97,686	134	76
Deutsche Mark	DEM	-	90	-	51
Pound Sterling	GBP	42	16	68	29
Danish Krone	DKK	283	192	43	28
Finnish Markka	FIM	93	79	23	19
French Franc	FRF	-	109	-	18
Indian Rupee	INR	470	-	28	-
Japanese Yen	JPY	2,882	-	20	-
Spanish Peseta	ESP	1,860	-	17	-
Other currencies				63	112
Total				1,907	1,663
Less the short-term portion				-161	-122
Medium- and long-term loans				1,746	1,541

Note 15 Stockholders' equity

Group	Share capital	Restricted reserves	Retained earnings	Net income	Total
Opening balance sheet	1,250	730	756	386	3,122
Transfers between reserves		311	75	-386	-
Proceeds from BBC warrants and convertibles			77		77
Dividend			-133		-133
Goodwill write off		-137			-137
Translation differences, and other		-96	-15		-111
New issue	500				500
Net income 1989				589	589
Closing balance sheet	1,750	808	760	589	3,907

Note 16 Assets pledged

	1989
Cash equivalent and securities	103
Receivables and inventories	251
Loans granted, shares and participations	16
Property, plant, and equipment	342
Total	712

Note 17 Contingent liabilities

	1989	1988
Discounted bills of exchange	172	208
Guarantees related to		
financial contracts	283	
financial operations	324	372
Other contingent liabilities	417	249
Total	1,196	829

As part of the Group's business operations, there are, in addition to the contingent liabilities listed above, guarantees for the completion of various contractual undertakings. Some of these are of an on-demand nature. There is no indication that such guarantees existing at year end for deliveries etc. will result in any payment.

Note 18 Generally Accepted Accounting Principles in the United States (U.S. GAAP)

The most significant differences between ABB and U.S. accounting practices are described in the following paragraphs:

Revaluation of assets

ABB accounting principles under certain circumstances permit a write-up of fixed assets above the acquisition cost, which normally is not accepted under U.S. GAAP.

Deferred taxation

ABB provides 30 percent on timing differences which are not expected to be reversed in the foreseeable future. U.S. GAAP require that the local statutory tax rate be used for deferred tax calculation.

Goodwill

Goodwill is written off against stockholders' equity in the year of acquisition unless it is very substantial, in which case it is amortized according to a plan drawn up in each individual case. U.S. GAAP do not allow direct write-off of goodwill against equity. Instead, goodwill is capitalized and amortized over a maximum of 40 years.

Revenue recognition for long-term contracts

In most countries, revenues from long-term contracts are recognized at the completion of the contract or defined phases thereof. Under U.S. GAAP, revenue recognition normally takes place on a percentage-of-completion basis.

Sale and lease-back

Under U.S. GAAP, the profit arising from a sale and lease-back transaction is deferred and amortized to income over the leasing period or the period of depreciation of the asset. This method is not applied by ABB.

If U.S. GAAP were applied, this would have the following estimated effects on net income and stockholders' equity:

	1989	1988
ABB Group Income Statement Adjustment to U.S. GAAP		
Net income as reported	589	386
Increase / decrease for:		
• Revaluation of assets	6	- 8
• Sale and lease-back	- 46	-254
• Goodwill	- 20	- 17
• Deferred taxes	- 23	-168
• Restructuring expenses	-105	267
• Revenue recognition	34	78
• Other	- 12	- 1
Approximate net income, U.S. GAAP	423	283
	1989	1988
ABB Group Stockholders' Equity Adjustment to U.S. GAAP		
Stockholders' equity as reported	3,907	3,122
Increase / decrease for:		
• Revaluation of assets	-273	-300
• Sale and lease-back	-360	-317
• Goodwill	378	236
• Deferred taxes	-770	-724
• Restructuring expenses, not yet incurred	548	653
• Revenue recognition	189	158
• Minority interest in adjustments	31	18
• Other	263	282
Approximate stockholders' equity, U.S. GAAP	3,913	3,128

The following table shows a summary of the consolidated balance sheet according to ABB accounting principles and U.S. GAAP:

	Balance sheet as reported according to ABB accounting principles		Estimated figures according to U.S. GAAP	
	1989	1988	1989	1988
Current assets	16,413	14,368	17,997	15,994
Land, buildings, and equipment	3,924	3,434	4,539	3,526
Shares and participations	2,183	394	954	394
Other assets	1,636	769	3,635	930
	24,156	18,965	27,125	20,844
Current liabilities	13,209	9,193	14,204	10,043
Advances from customers	3,379	3,394	3,807	3,394
Medium- and long-term liabilities	2,981	2,581	3,562	2,898
Deferred taxes	212	289	990	985
Minority interest	468	386	649	396
Stockholders' equity	3,907	3,122	3,913	3,128
	24,156	18,965	27,125	20,844

Note 19**Consolidated Balance Sheet – Combustion Engineering and Subsidiary Companies**

Combustion Engineering is not consolidated in the ABB Group figures. For the convenience of the reader the Consolidated Balance Sheet for Combustion Engineering Inc and subsidiary companies is presented below in the format used in their audited financial statement.

December 31,	1989	1988
	(Dollars in thousands)	
Current Assets:		
Cash and short-term investments	168,113	157,852
Accounts receivable, net	709,910	658,342
Inventories	429,670	490,173
Prepaid expenses	32,843	25,067
Total current assets	1,340,536	1,331,434
Investments in associated and other companies:		
Investment in Vetco Gray Inc	164,099	164,099
Net assets of discontinued operations	22,546	105,997
Other investments	62,344	74,549
	248,989	344,645
Capital assets, net	537,776	571,369
Goodwill, net	214,833	221,751
Other assets	71,020	76,636
Total assets	2,413,154	2,545,835
Current liabilities:		
Short-term borrowings	220,418	120,717
Accounts payable	234,508	267,328
Accrued liabilities	683,659	753,370
Income taxes	79,076	65,461
Advance payments	428,264	395,244
Total current liabilities	1,645,925	1,602,120
Deferred income taxes	17,217	20,779
Long-term debt	218,556	316,046
Other liabilities	5,377	13,702
Redeemable preferred stock	100,000	—
Shareholders' equity: preferred stock, no par value – authorized and unissued – 5,000,000 shares		
Common stock \$ 1 par value – authorized – 100,000,000 shares – issued – 39,168,058 shares in 1989 and 38,753,596 shares in 1988	288,388	268,737
Retained earnings	161,905	335,991
Cumulative translation adjustment	(12,595)	(10,844)
	437,698	593,884
Treasury stock, at cost	11,619	696
	426,079	593,188
Total liabilities	2,413,154	2,545,835

ASSETS**LIABILITIES AND
SHAREHOLDER'S
EQUITY**

Note 20**Split of ABB Financial Statements into Industrial Operations and Financial Services**

Transactions between the two parts have been eliminated only in the consolidated financial statements as follows:

	1989	1988
Income statement		
Other expenses	14	—
Interest income	470	298
Interest expense	470	298
Deferred taxes	5	—
Net income	9	0
Balance Sheet		
Cash and marketable securities	2,594	1,802
Trade receivables	14	10
Other current receivables	4,370	1,551
Financing receivables	451	448
Total assets	7,429	3,811
Trade payables	17	10
Other current liabilities	757	1,868
Short-term loans	5,971	1,541
Medium- and long-term loans	670	392
Deferred taxes	5	—
Net income	9	—
Total liabilities	7,429	3,811

Auditors' Report

We have audited the consolidated financial statements of ABB Asea Brown Boveri Ltd and subsidiaries as of and for the year ended December 31, 1989, in accordance with International Auditing Guidelines.

The financial statements of material subsidiaries representing a substantial majority of the total consolidated assets and of the total consolidated revenues were audited by other auditors.

In our opinion, the consolidated financial statements present fairly the consolidated financial position of ABB Asea Brown Boveri Ltd and subsidiaries at December 31, 1989

and the results of their operations and the changes in their financial position for the year then ended in accordance with International Accounting Standards as explained and interpreted in the Principles for Consolidated Financial Statements included in this report.

Zurich, March 20, 1990

KPMG Klynveld Peat Marwick Goerdeler SA

B. A. Mathers

H. N. Matthews

Major Group Companies 1989

Region / Country	Company	Location
Western Europe – European Community		
Belgium	Asea Brown Boveri S.A.	Brussels
Denmark	Asea Brown Boveri A/S	Odense
France	Asea Brown Boveri S.A.	Lyon
Germany (Federal Republic)	Asea Brown Boveri Aktiengesellschaft	Mannheim
Greece	Asea Brown Boveri S.A.	Athens
Ireland	Asea Brown Boveri Limited	Dublin
Italy	Asea Brown Boveri S.p.A.	Milan
	SAE Sadelmi S.p.A.	Milan
Netherlands	Asea Brown Boveri B.V.	Rotterdam
Portugal	Asea Brown Boveri Eléctrica, Lda	Lisbon
Spain	ABB Energia S.A.	Madrid
United Kingdom	Asea Brown Boveri Ltd	London
	ABB Kent (Holdings) plc	Luton
Western Europe – EFTA		
Austria	Asea Brown Boveri Aktiengesellschaft	Vienna
Finland	ABB Strömberg Oy	Helsinki
Norway	Elektrisk Bureau A/S	Asker
Sweden	Asea Brown Boveri AB	Västerås
	Fläkt AB	Stockholm
Switzerland	ABB Asea Brown Boveri Ltd	Zurich
	Asea Brown Boveri AG	Baden
	Elettrofin – Società Anonima Finanziaria Holding	Lugano
North America		
Canada	Asea Brown Boveri Inc.	Montreal
United States	Asea Brown Boveri Inc.	Purchase, NY
Asia and Australasia		
Australia	Asea Brown Boveri Pty. Ltd	Bondi Junction/Sydney
Hong Kong	Asea Brown Boveri Ltd	Hong Kong
India	Asea Brown Boveri Ltd	Bangalore
Japan	Asea Brown Boveri K.K.	Tokyo
Malaysia	Asea Brown Boveri Sdn. Bhd.	Kuala Lumpur
New Zealand	Asea Brown Boveri Ltd	Auckland
Philippines	Asea Brown Boveri Inc.	Makati (Manila)
Saudi Arabia	BBC Brown Boveri Saudi Arabia Ltd	Riyadh
Singapore	Asea Brown Boveri Holdings (S.E.A.) Pte Ltd	Singapore
Thailand	Asea Brown Boveri Ltd	Bangkok
Turkey	Asea Brown Boveri Holdings A.S.	Istanbul
Latin America, Africa		
Argentina	Asea Brown Boveri S.A.	Buenos Aires
Brazil	Asea Brown Boveri Ltda	Osasco
Columbia	Asea Brown Boveri Ltda	Bogotá
Mexico	Asea Brown Boveri S.A. de C.V.	Mexico City
Venezuela	Asea Brown Boveri S.A.	Caracas
Zimbabwe	Brown Boveri (Zimbabwe) (Private) Ltd	Harare

A more comprehensive list of ABB Group companies is available on request.

ABB Asea Brown Boveri Ltd, Zurich

The following two pages are excerpts from the annual report of ABB Asea Brown Boveri Ltd, the holding company of the ABB Group. Corporate Staff Investor Relations will supply the full report on request.

Balance Sheet

(Swiss Francs in thousands)

December 31		1989	1988
ASSETS	Current Assets		
	Cash and marketable securities	173,576	764,640
	Receivables	51,562	310,278
	Unpaid share capital	310,000	—
	Total Current Assets	535,138	1,074,918
	Fixed Assets		
	Loans granted	131,694	108,888
	Shares and participations	4,543,479	2,850,481
	Machinery and equipment	4,200	3,600
	Total Fixed Assets	4,679,373	2,962,969
TOTAL ASSETS		5,214,511	4,037,887
LIABILITIES AND EQUITY	Liabilities		
	Payables	867,942	74,057
	Provisions	18,184	51,104
	Medium- and long-term loans	148,000	728,713
	Total Liabilities	1,034,126	853,874
	Stockholders' Equity		
	Share capital	2,380,000	1,600,000
	Legal reserve	320,000	320,000
	Other reserves	1,071,388	952,648
	Retained earnings	106,102	—
	Net income	302,895	311,365
	Total Stockholders' Equity	4,180,385	3,184,013
	TOTAL LIABILITIES AND EQUITY	5,214,511	4,037,887
	Contingent Liabilities	2,746,273	1,563,493

Income Statement

(Swiss Francs in thousands)

Year ended December 31	1989	1988
Revenues	14,445	11,528
Operating expenses incl. depreciation	– 97,745	– 65,329
Dividend income	373,679	224,972
Interest income	50,783	58,855
Interest expense	– 36,345	– 35,706
Net profit from sale of participations	58,617	187,582
Nonrecurring items and taxes	– 60,539	– 70,537
Net income	302,895	311,365

Proposed Appropriation of Profit

(Swiss Francs in thousands)

	1989	1988
Net income of the year	302,895	311,365
Carried forward from previous year	106,102	–
	408,997	311,365
Allocation to legal reserve	– 15,145	–
Dividend on class A shares in favor of ASEA AB	– 152,632*	– 105,263**
Dividend on class B shares in favor of BBC Brown Boveri Ltd	– 145,000	– 100,000
Net income carried forward to new account	96,220	106,102

*equals net SFr. 145 million after withholding tax

**equals net SFr. 100 million after withholding tax

Auditors' Report to the Shareholders

As auditors of your company we have examined the financial statements for the year ended December 31, 1989, in accordance with the provisions of Swiss law.

We have come to the conclusion that

- the balance sheet and income statement are in agreement with the books
- the books of account have been properly kept
- the financial position and the results of operations are presented in accordance with the principles of evaluation prescribed by Swiss law and the requirements of the Company's statutes.

Based on the results of our examination we recommend that the financial statements submitted to you be approved.

We further confirm that the proposal of the Board of Directors for the appropriation of the net income is in agreement with Swiss law and the Company's statutes.

Zurich, March 20, 1990

KPMG Klynveld Peat Marwick Goerdeler SA

B. A. Mathers

H. N. Matthews

ASEA Investor Information

In addition to its 50-percent holding in ABB Asea Brown Boveri Ltd, the ASEA Group today has three wholly-owned subsidiaries – the SEV Group (power utility), Hägglund & Söner, and Broströms – as well as substantial holdings in ESAB, Electrolux, and SILA.

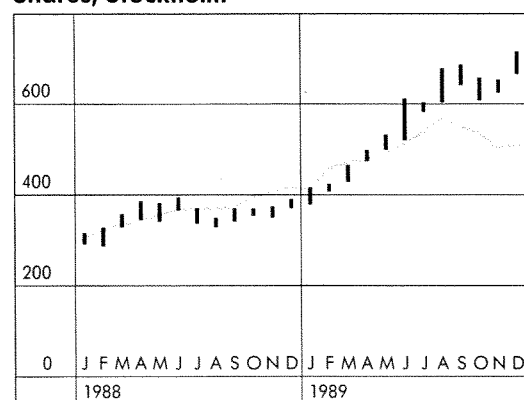
ASEA has issued a total of 60,002,741 shares, each with a par value of 50 Swedish Kronor. The A shares carry one vote per share, the B shares $\frac{1}{10}$ of a vote per share. Restricted shares may only be owned by Swedish citizens, whereas unrestricted shares may be held by both Swedish and non-Swedish nationals.

In 1985, ASEA issued a convertible debenture loan totaling 640 million Swedish Kronor. The loan carries an interest rate of 12 percent, and the conversion rate is 213.30 Swedish Kronor. The last day of conversion is January 15, 1991. On full conversion, the number of B shares will increase by 3 million.

ASEA's B shares are quoted on the Stockholm, London, Copenhagen, and Helsinki stock exchanges, on the Freiverkehr (OTC list) in Germany, and on NASDAQ in the United States in the form of sponsored American Depositary Receipts (ADR). The convertible debenture loan is listed on the Stockholm stock exchange.

Including the convertible debenture loan, ASEA's market capitalization at year-end 1989 was approx. 44.7 billion Swedish Kronor (\$ 7.2 billion), making it Sweden's largest company in terms of market capitalization.

Share-Price Trend for B Unrestricted Shares, Stockholm



Bars indicate highest and lowest price paid for shares each month (in Swedish Kronor).

--- General Index.

Per-share Data (in Swedish Kronor, fully diluted)

	1989	1988
Net income	35.40	25.70
Net income, equity accounting	39.30	28.20
Dividend	12.00 ¹	9.00
Equity ²	231	213
Stock price (B share)		
– High	720	395
– Low	370	285
– Year end	710	390

Key ratios³

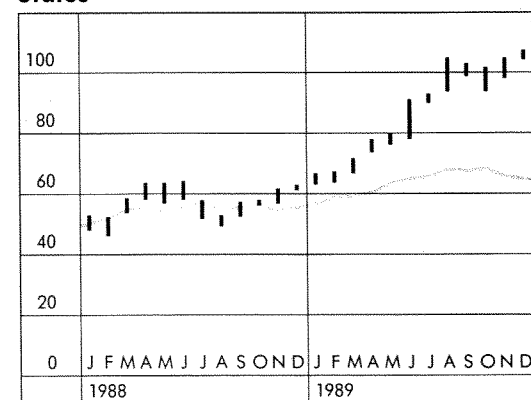
Return on equity (%)	19.8	12.6
Direct yield (%)	1.69	2.31
Market-to-book (%)	307	183
P/E	20.1	15.2
P/E (equity accounting)	18.1	13.8

¹ proposed ² including convertible debenture loan

³ based on the B share year-end stock prices

Class of Share	Number of Shares	% of Total Capital Stock	% of Voting Rights
A restricted	48,979,947	81.63	95.84
A unrestricted	1,134,871	1.89	2.22
B unrestricted	9,887,923	16.48	1.94
Total	60,002,741	100.00	100.00

Share-Price Trend for ADRs in the United States



Bars indicate highest and lowest price paid for shares each month (in U.S. Dollars).

--- NASDAQ Index.

BBC Investor Information

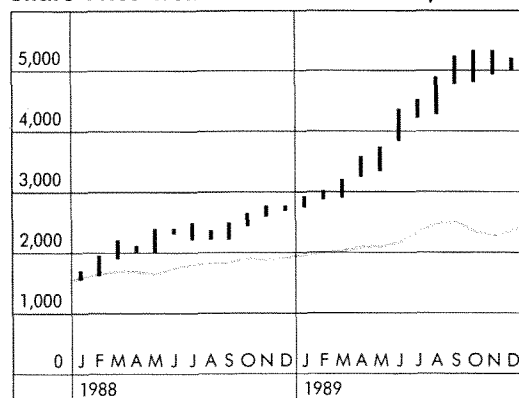
In addition to its 50-percent holding in ABB Asea Brown Boveri Ltd, BBC Brown Boveri Ltd has five wholly-owned subsidiaries – Sicommerce Ltd, IPT Industrial Projects and Trade Ltd, BBC Limmatkraftwerk Ltd, Roemerpark Ltd, and Klosterbrühl Wettingen Ltd – as well as a majority holding in Gewerbebank Baden.

BBC has three different classes of shares: registered shares, bearer shares, and bearer participation certificates (PCs). The registered shares may only be owned by Swiss citizens, whereas the bearer shares and PCs may be held by Swiss and foreign nationals.

Each registered share carries one vote and has a par value of 100 Swiss Francs (SFr). Each bearer share also carries one vote, but the par value is SFr. 500 and the dividend entitlement five times higher. The PC has a par value of SFr. 100 and carries the same dividend as the registered shares but no voting rights. At the end of 1989, BBC had 954,454 registered shares, 959,485 bearer shares, and 1,792,699 PCs outstanding and entitled to dividend. One convertible debenture loan and two warrant issues were also outstanding. All three classes of shares are listed on the Zurich, Basle, and Geneva stock exchanges. Bearer shares and PCs are also listed in Frankfurt and Vienna. The warrant issues are listed on the Zurich, Basle, and Geneva stock exchanges.

At end 1989, BBC's market capitalization, fully diluted, was approx. 8.1 billion Swiss Francs (\$ 5.3 billion), making BBC Switzerland's ninth largest company in terms of market capitalization.

Share-Price Trend for Bearer Shares, Zurich



Bars indicate highest and lowest price paid for shares each month (in Swiss Francs).

— Swiss Performance Index.

Per-share Data (in Swiss Francs, fully diluted)

	1989		1988	
	Bearer	PC	Bearer	PC
Net income	310.75	62.15	196.45	39.29
Dividend	62.50 ¹	12.50 ¹	50.00	10.00
Equity	1,755	351	1,555	311
Stock price				
– High	5,430	948	2,830	447
– Low	2,780	441	1,540	230
– Year end	5,130	899	2,750	442

Key ratios²

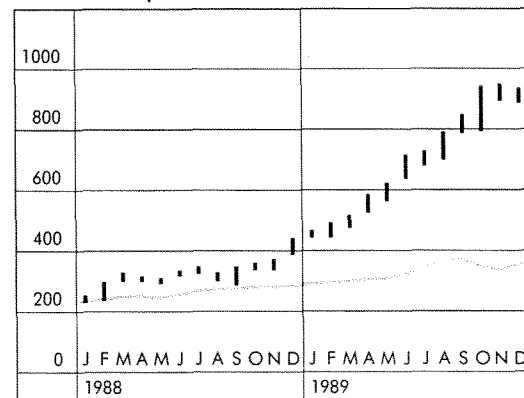
Return on equity (%)	17.7	17.7	12.6	12.6
Direct yield (%)	1.22	1.39	1.82	2.26
Market-to-book (%)	292	256	177	142
P/E	16.5	14.5	14.0	11.2

¹ proposed ² based on year-end stock prices

Class of Share	Number of Shares (fully diluted)	% of Total Capital Stock	% of Voting Rights
Registered	1,006,550	12.41	50.00
Bearer	1,006,550	62.06	50.00
PC	2,069,858	25.53	0.00
Total	4,082,958	100.00	100.00

Outstanding warrants as at December 31, 1989	Conversion/Exercise	Equity increase upon exercise
1987–1999 warrant issue	Oct. 1, 87–Oct. 31, 91 SFr. 1,766 / bearer share SFr. 315 / registered share	SFr. 97 m
1989–2000 warrant issue	March 1, 90–Nov. 1, 93 SFr. 900 per PC	SFr. 157 m

Share-Price Trend for Participation Certificates, Zurich



Bars indicate highest and lowest price paid for shares each month (in Swiss Francs).

— Swiss Performance Index.